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MANUAL

OF

AGRICULTURAL CO-OPERATION

IN DENMARK

AND HINTS FOR ITS ADOPTION IN INDIA

BY

RAI SAHEB PANDIT CHANDRIKA PRASADA

RETIRED ASSISTANT TRAFFIC SUPERINTENDENT
B. B. & C. I. RAILWAY.

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This Book is Dedicated

to

The People of Denmark

in token of

the high esteem and grateful acknowledgment

of the

hospitality accorded to an Indian Visitor.

BY THE SAME AUTHOR.

Works in Hindi.

The Kányakubja Sudhárak.—A Monthly Journal on Social Reforms among the Kányakubja Brahmans, 1900-1903.

The Báni of Swámi Dádú Dayál, Founder of the Dádúpanth, A Social and Religious Reformer of India in the sixteenth century, 1907.

Panchendriya Charitra of Sundar Swámi, with a sketch of his life and poetical works, 1913.

Works in English.

An Essay on Switzerland, and some Points of Swiss Education, 1915.

A History of Indian Railway Finance and Administration.—Now in preparation.

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PREFACE.

Driven by curiosity to know the conditions of life in foreign countries and to compare them with those in my own country, I went to Europe in 1911. India being an agricultural country, I was especially attracted to those countries which were known for their successful achievements in agriculture. After a highly-interesting tour through Great Britain and Ireland, I went to Denmark, which is known as the Dairy-farm of Europe.

Copenhagen, the capital of Denmark, naturally claimed my first attention. Before I was there long, I was greatly impressed by the gentlemanliness, politeness and courtesy that greeted me all round. I was charmed with the country and its people, and I made up my mind to study their history.

At the suggestion of a friend I went up to Det Kongelige Bibliotek — the Royal Library—where I was most courteously allowed the use of the books. I was provided with a separate table with ample stationery free of charge. After reading several books on Denmark, I was convinced that the high virtues of the Danes were due to their high culture, imparted through their educational institutions, and that the prosperity of the people was due to their Co-operative Unions. I then visited several of their Municipal and private Schools and their Folkehójskoler, and in Chapter XVII will be found a summary of the information regarding their Primary and Secondary Education collected from various sources.

My time being short, I had to leave Denmark most reluctantly without studying their Co-operative institutions.

In 1914 I found another opportunity of visiting Denmark, and I utilized this opportunity in studying the details of its Co-operative Institutions, as embodied in this volume. These details I gathered by personally visiting various factories, business houses and offices of the institutions; and in preparing this volume I have made an attempt to embody full practical details of the organization, working, accounting and financial success of the Danish Co-operative Unions and Associations which have made agriculture so profitable in that country. The statements of yearly or half-yearly accounts of the various institutions given will, it is hoped, give to those desirous of establishing new Associations, an idea of the extent of business for which separate unions could profitably be formed, of the nature of transactions and the various items of expenses usually incurred, of the working out and distribution of surplus profits among the members, etc. Among the English publications on the subject, I have not come across one giving such complete details of this wonderful organization. It is, therefore, hoped that this volume will meet a general want. To promoters, organizers, managers, and workers of Co-operative Unions, the information given herein will prove beneficial.

The matter has been prepared especially for the benefit of Indian agriculturists, so that they may form similar Unions and Associations in India, in order to improve their present condition, which is one of extreme

poverty and helpless indebtedness. Like Denmark, India has agriculture for its main industry, but it is very much in the same backward condition as Denmark was about the middle of the last century. Like the Denmark of those days, India is growing mostly corn, neglecting its live stock generally and milch cattle specially, while the agriculturists of India pay no attention towards manufacturing their own produce. As the adoption in Denmark of the methods described in this volume has brought about a complete change in the moral and material condition of the Danish people, it is hoped that similar improvements will follow in India.

I am greatly indebted to the Danish people generally for their uniform kindness, courtesy and hospitality. For the information contained in this volume my best thanks are due to the Government authorities of Ajmer-Merwara, and to the members of the Agricultural Department of the Danish Government, to the Directors, Managers, and Assistants of the various concerns described, to the authorities of the Danish State Railways, and to the authorities of the Educational Institutions in various parts of Denmark and other Scandinavian countries. Among the numerous gentlemen who afforded me facilities and information, I mention the following:—

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Mr. Jens. Warming of the Statistical Department.
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Mr. N. O. Hofman Bang, Director of the Royal Experimental Laboratory.
Mr. C. H. Funch, British Vice-consul.
Mr. Georg Höfler, Managing Director, Danish Bacon Company.
Mr. Fr. S. Jensen, Secretary, Combined Association of Bacon Curers.
Mr. Emil Demant, Managing Director, Trifolium Dairy, Hasley.
Mr. And. Nielsen, President, Central Committee of Co-operative Associations.
Mr. Jean Wilian Franck, Director of the Danish Co-operative Bank, Arhus.
Mr. Th. Madsen, Director, Egg Export Association.
Konsul A. Kraunsoe, Director, Danish Dairies.
Mr. S. Laursen, Forstander, Haslev Control School.
Mr. Chr. Pedersen, Director, Co-operative Society for Household Goods.
Mr. M. Henrichsen, Director, Co-operative Society for purchase of cattle food, etc., Copenhagen.
Mr. Chr. Nielsen, Director, Co-operative Society for purchase of cattle-food, etc, Aarhus.
Mr. Chr. Jörgensen, Manager, Co-operative Dairy, Tudse Naes.
Mr. Thomas Butler, Superintendent of Statistics and Intelligence Branch of the Department of Agriculture and Technical Instruction for Ireland, Dublin.

My thanks are also due to Mr. James Inglis, Manager of the Scottish Mission Industries Company, Limited, Ajmer, for the pains he has taken in getting out this Volume.

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Rural Denmark and its Lessons, by Sir H. Rider Haggard, 1911.

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De Sammensluttede Sjaellandske Kontrol foreningers Regnskabei 1912-13, and other Provincial Compilations of Control Unions.

CONVERSION TABLE.

1 Kilogram	= 2·204622 lbs.
2 Pounds Danish	= 1 Kilogram.
101·6 ,, ,,	= 1 cwt. English.
1 Tonde land	= 56,000 square feet = 1·363 Statute acres.
1 Metre.	= 3 feet $3\frac{3}{8}$ inches.
1 Kilometer	= 0·132758 Danish mile or 0.621372 English mile.
1 Danish mile	= 4·2 English miles.
1 Hectare (ha)	= 1·812834 Danish Tonde-land, or 2·471059 acres.
1 Hectoliter (hl)	= 0·78798 Danish Tonde-grain (Td.) or 2·8377 bushels.
1 Tonde land	= 1·4 acres.
1 Tonde grain	= 1·391212 (hl) or 0·478176 qrs.
1 Krone	= 100 óre = 13·25 pence or annas.

ERRATA.

Page.	*Number of line from top.*	*For*	*Substitute*
57	17	Samivirkende	Samvirkende.
68	11	Jorgenrsen	Jórgensen
76	16	Cottle	Cattle.
110	...	Above para. 47 add the following:—"Section 5—System of Payment and Accounting."	
126	First table, third main column.	Members	Member.
137	27	Sounds	Sound.
139	28 in the right half of the table.	Offices expenses	Office expenses.
146	14 ditto.	Managing Directors	Managing Director.
154	9 ditto.	18,625	48,125.
157	11	Godnignsforetning	Godningsforetning.
163	40	100 krone	100 krones.
165	26	it	its.
208	21	Folkehóskoler	Folkehójskoler.
223	9	avilable	available.
216	28	way	may.
216	37	मगाखुवत	मगाखुवत
257	26	trades	trade.

INTRODUCTION.

This work has been written after a careful study of the subject on the spot. The facts and figures embodied herein were collected while going through the practical work in factories and during personal enquires made at the various institutions and Business Houses in Denmark.

Denmark lies in the Northern part of Europe and was once a great empire, including Sweden and Norway, locally styled as Sverige स्वर्ग and Norge नर्ग respectively, which are identical to the Sanskrit names Svarga and Narak, as an ancient home or colony of Indian Aryans.

The whole work is divided into eighteen chapters, the first of which gives general information about Denmark. Chapters II to XVI give a detailed description of the various kinds of Co-operative Unions and Associations found in that country, which make the cultivation of land so profitable as to give a good return to those who work on the soil. This at present is not the case in India, and chiefly for this reason a large proportion of educated Indians go to swell the ranks of office clerks. The prosperity of Denmark is almost entirely due to the co-operative manufacturing industries in connection with agriculture, which the Danes have so admirably perfected.

Up to the middle of the last century, the condition of the agriculturists in Denmark and the methods of their agriculture and the rearing of cattle were as backward as they are to-day in India. The Danish people after that time, especially since the year 1882, have adopted the co-operative methods in connection with the main branches of their agricultural work and in this way have wonderfully improved the breeds of their cattle, increased the output from land, and multiplied the production of milk and butter, making the prices of these two articles cheaper than those at present prevailing in India—the land of the mother cow. This fact forcibly demonstrates the efficiency of the Danish Co-operation, especially when we consider the fact that the standard of life and rates of wages and prices of other articles in Denmark are on the higher levels of European countries.

The agriculturists of Denmark are now the richest amongst the agriculturists of the world, for even the Americans admire the achievements of rural Denmark. The Danish people are highly educated, their farming is excellent, their Co-operative Unions are wonderfully successful, their wealth is almost evenly distributed among all classes, so that the nation is free from the extremes of

poverty and riches—a condition so necessary for the healthy growth of a nation. They are in a flourishing condition, have beautiful and substantial dwellings and numerous public institutions of a very high order.

The information embodied in this volume gives full practical details of the organisation, working, accounting and financial success of the various kinds of co-operative institutions, so that similar methods may be adopted in any other country desiring to improve its condition. The Co-operative Institutions described are many, of which the following will doubtless be found the most interesting to India:—

Agricultural Associations.

Cattle-breeding Unions.

Milk and Butter-yield Testing (Control) Unions.

Co-operative Dairies.

Co-operative Credit Societies for Land-owners.

Associations for the joint-sale of agricultural produce.

Associations for the joint-purchase of agricultural requirements.

Associations for the supply of household goods.

The organisation of Unions of these classes, with their federal bodies, their membership, working, rules and regulations are fully detailed, and should prove helpful in bringing about similar unions in any country.

Breeding of pigs for bacon is not likely to be adopted by the agricultural classes in India. The matter relating to this industry is, however, very important, as it has the most comprehensive organisation of Co-operative Unions and Associations in all the three stages described at page 148. For this reason the matter has been included, and it is more than probable that this volume will find many readers in India as well as in other countries to whom this subject will be interesting and useful. Without this matter the subject of Danish Co-operation would certainly be incomplete.

A separate chapter is devoted to the system of general education—Primary and Secondary—and agricultural education in Denmark and the two other Scandinavian countries. This chapter read with the author's paper on the system of education in Switzerland, which appeared in the "Modern Review" of June 1915, should furnish hints to those aspiring to educational reforms in India.

In the final chapter, which embodies hints for the adoption of the Danish Co-operative system in India, an attempt has been made to bring out the question of agricultural indebtedness and non-paying character of agriculture as it is carried on at present in some of the Indian Provinces. Special attention is drawn to this matter, as

the continued indebtedness of a majority of the agriculturists of India would appear, to a large extent, to be due to this condition. The section relating to this subject is of great importance to students of Indian economics, and it is hoped that the subject will be fully investigated by those who are in a position to do so. The statistics published by the Danish Government show that in 1909 the total debts upon agricultural properties amounted to 42·8 per cent. of the total value of all agricultural properties (including those unmortgaged) in that country. Similar statistics for India do not appear to have been compiled, though the necessary data may be found in the Settlement Records of each District.

At the end of this volume there are six Appendices, embodying the Articles of Association and Bye-laws of the principal Co-operative Associations of Denmark.

It is hoped that the information given will be useful to India, especially at the present time, when the question of the industrial advancement of this country is under the serious consideration of the people and the Government of India. The subject of Agricultural Co-peration is of vital importance to India, considering that 71·29 per cent. of the total population of 315 millions depends upon agriculture as the sole means of its subsistence. The leaders of the Benares Hindu University Society realised this importance when they invited the author to read a paper on the subject on the occasion of the laying of the foundation-stone of that University in February 1916; and as it chanced his was the first address of the series of the University Extension Lectures under the presidency of His Highness the Maharaja of Bikaner.

The subject of Agricultural Co-operation should be specially taught in Agricultural and Commercial Schools and Colleges in India, as is the case in Denmark. Until such time as a revised edition of this volume is issued, it is hoped that the present volume will meet the wants of students of such institutions, while it will be helpful to promoters, organizers, managers and other officials of the Indian Co-operative Societies and to all others interested in the advancement of the agricultural interests of India. Education and Co-operation are the panacea for many of the ills and evils of India, and by placing this volume before the public, the author has made an effort to render that service which every son of India owes to the motherland and to his fellow-beings.

CHAPTER I.

General Information About Denmark.

Section 1.—Area and Population.

Denmark is one of the old Scandinavian countries. It was once a mighty empire ruling all over Scandinavia and also in England. Hamlet of Shakespearean plays was a Prince of Denmark, and his resting-place still stands in a silent but beautiful park at Elsinore.

The present kingdom is divided into two main divisions, viz:—

(1) Oerne (Islands), and
(2) Jutland.

The former includes Seeland, Bornholm, Lolland-Falster and Funen (Fyn), while the latter has three subdivisions, styled as South-eastern, Northern and South-western Jutland. The whole country is further divided into 19 Revenue districts (amts).

It has an area of 38,971·12 square kilometres, with a total population of 2,757,076, according to the census of 1911, of whom 1,337,900 are males and 1,419,176 females, giving the following averages:—

Total population per 100 square kilometres (160 per English square mile) ...	7,075
Number of males per 1,000 persons	485
,, females ,, ,, ...	515

The number of females appears to be on the increase, as the number of males per 1,000 persons has been steadily coming down from 496 in 1860 to 485 in 1911, the figures for the different periods being as under:—

1860	496
1870	494
1880	491
1890	488
1901	487
1906	486
1911	485

The following table gives the area, population, number of Parish Municipalities and Electorates for the Danish Parliament :—

Name of Province and District.	Total Population.	Area in Square Kilometres	Population per 100 Sq. Kilometres.	No. of Parish Municipalities.	Number of Electorates.	
					Folketing.	Landsting.
I. Seeland.						
Copenhagen City ...	462,161	...	...	...	13	1
,, District ...	218,661	1,146·11	9,365	50	7	
Frederiksborg ,, ...	97,169	1,335·90	5,513	44	5	1
Holbaek ,, ...	107,854	1,695·68	5,608	63	5	
Soró ,, ...	102,310	1,444·02	5,176	64	5	1
Praesto ,, ...	108,742	1,664·22	5,444	74	6	
1. Total Seeland	1,096,897	7,498·90	...	295	41	3
2. Bornholms	42,885	587·53	4,315	17	2	1
3. Maribo (Lolland-Falster)	115,658	1,789·19	4,875	68	5	1
4. *Funen*—						
Svendborg District ...	136,607	1,637·	6,315	75	7	...
Odense ,, ...	166,572	1,769·	6,135	79	8	...
Total Funen	303,179	3,474·22	...	154	15	1
I. Total Oerne (Islands 1 to 4)	1,558,619	13,349·84	...	534	63	6
II. Jutland.						
5. *South-eastern Jutland*—						
Vejle District ...	139,968	2,310·	4,081	68	6	...
Aarhus ,, ...	211,382	2,478·	4,584	76	9	...
Randers ,, ...	130,914	2,416·	4,056	75	6	...
	482,264	7,321·24	...	219	21	...
6. *Northern Jutland*—						
Aalborg District ...	145,017	2,916·	3,525	66	5	...
Hjórring ,, ...	130,238	2,797·	3,848	56	5	...
Thisted ,, ...	76,318	1,761·	3,555	51	4	...
	351,573	7,559·09	...	173	14	...
7. *South-western Jutland*—						
Viborg District ...	120,727	2,997·	3,481	81	5	...
Ringkóbing ,, ...	130,859	4,597·	2,537	87	6	...
Ribe ,, ...	113,034	2,997·	2,868	58	4	...
	364,620	10,740·95	...	226	15	...
II. Total Jutland	1,198,457	25,621·28	...	618	50	5
Total Denmark proper ...	2,757,076	38,971·12	7,075	1,152	113	11

Section 2.—Climate.

The climate of Denmark is like that of European Islands, with comparatively mild winters and cool summers. The normal temperature in the different seasons is as under :—

In winter between	−0·5°	and	+6·5°	C.
In spring	,, 4·5°	,,	6·°	C.
In summer	,, 14·5°	,,	16°	C.
In autumn	,, 7·0°	,,	9°	C.

The average temperature for the whole country is—

−0·2° C. for January.
5·2° C. ,, April.
16° C. ,, July.
7·9° C. ,, October.

The monthly mean temperature is very variable in the different years. During the years 1874 to 1910 it varied as follows :—

For January between −5·8° and +3·7° C.
For July between 13·7° and 18·6° C.

The absolute highest temperature observed in Denmark is 35·8° C., and the absolute lowest −29·6° C.

The annual number of frost days varies from 80 to 125 in the different Provinces. The last frost in the spring happens between 20th April and 10th May.

In the autumn the frost commences between October 5th and November 1st.

The wind blows most frequently from south-west and west; only in the spring are the easterly winds as frequent as the westerly; in April they even predominate.

The main velocity of the wind is 7·5 $\frac{\text{m.}}{\text{sec.}}$ (metre per second), in winter, and 6 $\frac{\text{m.}}{\text{sec.}}$ in summer.

The mean annual precipitation is 615 mm. Of this—

195 mm. falls in the summer,
185 ,, ,, in the autumn,
120 ,, ,, in the winter,
and 115 ,, ,, in the spring.

The precipitation is very variable in the different years. Since 1874 it has varied between 494 mm. and 739 mm. annually, while the summer precipitation varied

from 83 mm. to 304 mm. The number of days with precipitation is, on an average, 158 annually, of which 29 are with snow. The autumn has 45, the winter 40, the spring 35, and the summer 38 days with precipitation. Of the total number of days, only 25 % have more than 5 mm. precipitation.

The mean relative humidity of the air is about 90% in winter and about 75% in summer. The amount of clouds is greatest in winter, when, on an average, 73% of the sky is overcast, whilst in summer it is only 53%.

Section 3.—Ground-Law of Denmark.

Under the Danish Ground-Law of 1849, Denmark is a hereditary Limited Monarchy, the executive work being vested in the King, while the legislature is exercised conjointly by the King and the Rigsdag (Diet Parliament). The King is irresponsible and his person inviolable; he wields his power through responsible Ministers who constitute the Council of State, over which the King presides. The King's signature is valid only when accompanied by that of a responsible Minister. The Rigsdag which meets every year, and sits for at least two months, is composed of two Houses, the Folketing and the Landsting.

The right of voting to the Folketing is free to every burgher who has attained the age of 30 and is of good reputation, unless he is in private service without a household estate of his own. Every citizen is eligible for election when he has attained the age of 25. The elections are direct and are valid for three years.

The right of electing to the Landsting is possessed by every one who has the same right to the Folketing. The elections here, however, are indirect, electors being first chosen, who in their turn name the members of the Landsting. Every citizen who has attained the age of 40 is qualified for election to the Landsting, but must enjoy an income of not less than 1,200 rigsdaler (about £35) or during the preceding year has paid an income-tax of at least 200 rigsdaler (about £22). The election to the Landsting is valid for eight years.

All laws require sanction by the Rigsdag. Both Houses have equal rights to propose or to pass a law. The Budget (Finanslov) must first be laid before the Folketing; no taxes can be collected before the Budget has been voted. If both houses are not agreed on the passing of a bill, a joint committee can be appointed, whose propositions must be submitted to both Houses and settled by each separately. The King has the right to prorogue the Rigsdag, but only for two months in each session, and to dissolve either of the Houses or both, but must in that case convene a new Assembly within two months. He has also the power of absolute veto.

The Cabinet has access to all debates in the Rigsdag, but the right of voting only when they have been chosen members of the same. The Ministers, with regard to their administration, can be impeached both by the King and by the Folketing before the "Rigsret," a tribunal composed of assessors of the Supreme Court of the kingdom and an equal number chosen from its own members by the Landsting.

Judicial power is vested in tribunals, the judges being nominated by the Government.

Among other important clauses in the fundamental law, may be mentioned those which provide for freedom of conscience in religious matters, liberty to hold public or private meetings, and liberty of the press; also those securing that no imprisonment of persons, except in pursuance of a legal sentence, can take place, that industry is open to all classes and that all privileges or favouritism to special classes are abolished.

The Rigsraad is an assembly appointed to investigate common affairs, and to exert legislative power only in matters relating to the levying of new taxes or in the alteration or abolition of the old ones. In all other matters it should have a mere deliberative voice.

On 28th July 1866 the King's signature was affixed to the Revised Ground-Law of the kingdom of Denmark. This law is essentially identical with that of 1849; only in one very important point does it differ, viz., in the mode employed to constitute the Landsting. The intermediate election is retained, but the alteration consists in 12 of the 66 members being elected by the King for life and the rest being chosen by a very complicated mode

of election, the amount of electors' income having a decisive influence on the matter.

The Constitution of Denmark has suffered no change since 1891; especially has no change taken place in the Ground-Law, which is still "Danmarks Riges Gennemset (revised) Grund-lov" of 5th June 1849, as passed on July 28th 1866. Constitutional practice, however, has changed. The Liberal party in the year 1870 claimed that the Government should be conducted in accordance with the wishes of a majority of the Folketing, the chamber elected by the people. The Landsting, together with the Crown, disclaimed any such right for the Folketing, and provisional Finance Acts were passed in 1877 and 1885 to 1894 by the Crown according to the wishes of the Landsting, whilst the Folketing followed the device "no money to this Government." This compelled the Government to adopt regular Budgets from 1894, but it was not till 1901 that the King gave way and chose a Government that expressed the wishes of the Folketing. The ruling that the Government shall be conducted in accordance with a majority of the Folketing has prevailed since 1901, but no clause thereabout has been added to the Grund-lov.

Section 4.—Basis of Land Assessment.

Formerly the land in Denmark was taxed on the basis of what is known as Hartkorn, which was a measure of the yield from the land. It was fixed at 72,000 square alen =28,369 square metres of the best soil rated at 24 as the equivalent of Hartkorn. A soil assumed to give half the net profits of the best soil was rated at 12, and 56,738 square metres of such soil would therefore be equal to a Hartkorn. Similarly, the poorest agricultural soil rated at 1 would give 24 times more area in a Hartkorn than that of the best soil rated at 24.

The Hortkorn is no longer the basis for Real Estate taxation by the State, as all the Hartkorn taxes have been displaced partly by a Real Estate tax and partly by an Income and Property tax, under the two Acts of May 15th 1903; and under a third Act of the same date, the Hartkorn will gradually (and totally after January 1st 1925) cease

to be the basis for parish and county taxation, inasmuch as the Hartkorn even there is gradually replaced by the Real Estate tax.

The basis for the Real Estate tax is the value in the open market of the real estate, excluding stock, plant, machinery, and other working material, but including buildings and immovables.

The annual tax to the State is 1·1 krone per 1,000 kr., either of the valuation proper or, in certain cases, according to a reduction made under fixed rules; thus, small lots or properties owned by the labouring class, by fishermen or tradespeople working without employés, are partially or totally relieved of the Real Estate tax.

The valuation for the Real Estate taxation is made by an independent Appraisement Committee, consisting of a chairman appointed by the Secretary of the Treasury, and two appraisers elected by the people of each of the 141 tax districts in which Denmark is divided for the purposes of this taxation.

The valuation is made on the basis of the information filled in by the owner in blank forms prescribed by the Treasury. The owner must give a series of information as to the nature of the property, amount of debts and mortgages, income, etc., and finally his personal valuation of the property, all as a guide for the Appraisement Committee, which on the basis of the information thus obtained, determines the value of the property, after a personal inspection and information otherwise secured.

To test the valuation of the Appraisement Committee, there is a superior council consisting of eight members and a chairman, of whom the chairman and four members are appointed by the King, and two members each by the Upper and the Lower Houses of Parliament. This council decides the complaints of valuation submitted to it, and may also of its own motion, change a valuation which it deems incorrect.

The first valuation for the Real Estate taxation was made in July 1904, the second in July 1909, and thereafter such valuations are to be made every ten years. The valuation does not aim to get at the bare value of land alone but at the value in the open market of the land and buildings together.

Section 5.—Land Tenures.

Selvejergaard is a State gift (*jagir*) for services rendered. It carries ownership without restriction except that of the usual taxation. Under the law of primogeniture it descends to the first-born son. If the male issue fail, the estate goes back to the Crown. It cannot be burdened with debts beyond one's own life-time, unless such a debt is for the betterment of the land

Lease for a fixed number of years.—This lease holds for as many years, sometimes twice as many, as there are fields in the farm. The lease includes all live-stock and dead-stock on the farm. At the expiration of the lease the tenant must pay for every decrease in value of the farm implements, buildings, etc., and the landlord for any increase. The widow of a deceased tenant may remain in possession of the lease as long as she remains a widow. A second husband or the heirs of the tenant can claim no right in the lease.

"Fixed land" is another form of tenure, and this land must not be less than 12½ acres or more than 150 acres in extent. A certain sum must be paid down and also a certain annual amount as rent, but this lease is never from year to year.

One of the old systems of land tenure in Denmark is called the "Faeste." It is of three kinds, viz:—

(1) The simple "Faeste" is a lease for 50 years.

(2) "Live Faeste" is limited by the lives of the tenant and his wife.

(3) "Arve Faeste" may be either perpetual or governed by the rule of primogeniture, reverting to the proprietor on the failure of an heir.

The last one, when perpetual, is subject to a fine on each transfer of the property on the part of the tenant and a yearly rent. If the tenant and his wife die before the end of 30 years, their estate may receive as many thirtieths of the principal sum as the time of their occupancy has fallen short of that period.*

* Notes on Agricultural Conditions in Denmark by Hon. Maurice Francis Egan, Washington Govt. Printing Office, 1913.

The "Live Faeste" may best be described by an example:—

A landlord has a farm to let. This farm, from time immemorial, has had a fixed value which is well-known to everybody, but this value is of a fictitious nature, being only a figure fixed for the purpose of letting, never, perhaps, exceeding half the selling value of the land. We assume in this case, the figure to be £4,000. The farmer who takes this will be required to pay down £1,500 in cash on assuming possession. And besides this sum, he will have to pay an annual rent of about £160, or about 4 per cent. on the nominal sum of £4,000. He cannot be turned out of this farm during his own life or the life of his wife. The system takes rather the form of a speculation, in that should the man die in any year before he has completed 15 years' possession, the owner refunds to the widow £100 for every year short of the 15 years; so that should the tenant die after 10 years' occupation, his widow, if he has one, will receive £500, and she will still continue to be the tenant for the rest of her life, but has to pay the annual sum orginally stipulated. Should the farmer, however, not have a wife, the money which should go in the case of his death before 15 years, to the widow, could not be claimed from the land-owner, and the farmer's son, if he had one, would have to enter upon the farm if he wished to do so, in exactly the same manner as his father did before him, and in any case, upon the death of the widow, the son if he wished to do so, could only succeed to the farm on precisely the same conditions.

Analysing this system, therefore, it would appear that the terms of the tenancy become very much the nature of a gamble in life insurance. Of course, to a young farmer the terms are exceedingly good, seeing that the nominal sum on which the rent and premium are payable is well under the selling value. *

Peasant proprietorship (small holding with a free-hold) has, however, been spreading during recent years with the assistance of Government. The legislations of 1899, 1904 and 1909 provide for the purchase of land upon 98 years' loans at 3% per annum interest and 1% towards

* Report of the Irish Deputation of 1903, pages 121-123.

repayment of loans. A labourer who has $\frac{1}{10}$th the purchase price can borrow the other $\frac{9}{10}$ths from the State.

The system of small-holdings enables any Danish subject, not under 25 or over 50 years old, who does not possess sufficient money to acquire land on his own account, and who has worked as an agricultural labourer for 5 years preceding his application, to acquire from $2\frac{2}{5}$ to 16 acres of land fully stocked, valued at about 6,000 krones.

Thus on the production of testimonials of good character, the Danish peasant becomes a land-owner, the Government helping him and taking the character of the man as security.

Holders of $1\frac{1}{2}$ tons of *hard-corn or less are defined as husmands (small-holders). Holders of more than $1\frac{1}{2}$ tons of corn are called "gaarde" (farmers).

Holders of $1\frac{1}{2}$ to 12 tons of hard-corn (24 to 288 acres) are "bóndes gaarde" (peasant farmers).

Very large farms are called "herre gaarde" (gentlemen's farms).

Small holding	=	6 to 12	acres.
Ordinary farm	=	93	,,
Gentlemen's farm	=	1,250	,, or more.

A holding of less area than 12 acres of land is called a house (cottage); 36 acres is an average farm.

Section 6.—Government Department of Agriculture.

The Government Department of Agriculture has an organisation embracing 17 Branches, among which are the following :—

(1). Central Administration.
(2). Veterinary and Agricultural High School.
(3). State Counsellors for Land Economics.
(4). Direction for Earth Cultivation and improvement.
(5). Plant Culture.
(6). Domestic Animals Improvement.
(7). Control over trade in Crop Produce.

* Tondr hartkorn (a ton of rye and barley = 2,000 lbs.) is a measure of holdings. On the best soil about $8\frac{1}{2}$ acres were supposed to equal a ton of hard corn.

The annual budget for the year 1913-14 had a total provision of 4,325,867 krones. The salary of the Chief of the Department was 6,000 krones, rising by increments of 400 every fourth year to a maximum of 8,000 krones per annum, *i.e.*, 666 krones=about 555 rupees per month.

Agricultural Counsellors.—The idea of having expert advisers in agricultural work took a practical shape in Denmark in the year 1862, when the Agricultural Society appointed the late Prof. Segelcke as their first Dairy Counsellor.

The Danes claim that he was the first professor in dairying ever appointed for that work anywhere.

He trained several assistants, who were subsequently engaged by local agricultural societies in Denmark. In 1876 the Royal Agricultural Society appointed another counsellor in Animal Husbandry and another in Plant Culture in 1882.

From the year 1882 the Danish Government have inaugurated the employment and organisation of agricultural advisers at the expense of the State. Still a large number of associations in Denmark employ as many as 90 experts in animal husbandry, plant culture, poultry-keeping, etc., and the State contributes towards their salaries.

At present the Government has the following counsellors for the various branches of agricultural work to give expert advice to agriculturists or their Unions. The only charge levied from the public for their services is 8 krones per day for travelling allowance. For Dairy Counsellors this charge is only 2 krones, irrespective of the distance by rail or steamship. The annual allotment by Government for these officers for the year 1913-14 was 92,950 krones :—

1 Counsellor for Agricultural Geology.
1 „ „ Plant Pathology.
1 „ „ Agricultural Chemistry.
1 Agricultural Counsellor in England.
1 „ „ for the Faire Islands.
2 Counsellors for Plant Culture at Askov and Lyngby.

2 Counsellors (Veterinary Surgeons) for Horse-breeding, stationed at Copenhagen.

2 Counsellors (Veterinary Surgeons) for the Breeding of Domestic Animals (cows, pigs, sheep, etc.), stationed at Copenhagen and Aarhus.

4 Counsellors for the Dairies stationed at Copenhagen, Fredericia, Aarhus and Struer.

2 Counsellors (Mechanical Engineers) for Agricultural Implements and Machinery, stationed at Copenhagen and Valby.

1 Counsellor (Graduate in Gardening) for Fruit Culture and Gardening, in Jutland, at Vijlby, near Riskov.

7 Assistant Counsellors for Pig-breeding for seven districts.

Section 7.—Agricultural Statistics.

The agricultural area is 75% of the whole area of Denmark, while the proper cultivated area is 66% of the total. The utilization of the cultivated area was as under :—

	1866.	1888.	1907.
	%	%	%
Grain	46·5	45·2	43·5
Root Crops	1·9	4·2	12·0
Other Crops	3·9	2·4	1·0
Fallows	9·3	10·3	8·9
Soiling Crops and Grass ...	38·4	37·9	34·6
Total ...	100·	100·	100·

The area used for different crops was as follows :—

	1866.	1888.	1907.
	Sq. Km.	Sq. Km	Sq. Km.
Wheat	620	485	405
Rye	2,090	2,809	2,760
Barley	3,033	2,981	2,337
Oats	3,581	4,261	4,030
Mixed Grains		930	1,695
Total Grains ...	9,324	11,466	11,227
Potatoes	305	523	541
Other Roots (Carrots, Beet, Kaal, Turnips)	25	529	2,543
Soiling Crops, Buckwheat, etc....	1,170	1,038	1,076
Grass and Clover	7,768	9,199	8,585
Fallows	1,788	2,587	1,829
Meadows	2,392	2,294	2,229
Total Fields and Meadows	22,772	27,636	28,030
Fences, Gardens and Nurseries...		283	519
Forests and Plantations ...	1,747	2,268	3,242
Heaths and Heather Hills ...	7,376	4,075	3,171
Drifting sands and downs, swamps, ponds and water-area	5,536	406 3,318	511 3,496
Total ...	37,431	37,986	38,969

Agricultural Produce.—According to the statements of the Statistical Bureau, a total area of 5,082,160 Tdr. Land (75% of the whole area) was used for field and meadow. The following table shows the actual utilization of agricultural area :—

Crops.	Area in Tdr. Land.	Harvest Yield.				Value of Harvest.	
		Yearly average for 1907-11.		1912.		1911.	1912.
		1,000 Tons.	1,000 Hektoliter.	1,000 Tons.	1,000 Hektoliter.	Million Kr.	Million Kr.
Wheat	73,943	117	1,515	98	1,213	16·0	12·3
Rye	500.359	481	6,543	482	6,514	61·2	55·8
Barley 2 r.	347,417	507	6,242	542	6,741	59·2	61·5
,, 6 r.	76,265		1,242		1,292	11·3	11·5
White Oats	586,421	734	12,521	747	12,862	78·3	75·7
Grey ,, ...	144,242		2,062		2,084	13·1	12·5
Mixed seeds	307,234	339	6,073	351	6,268	44·4	43·7
Buckwheat	10,912	4	75	5	82	0·5	0·8
Peas	17,179	14	178	16	196	1·9	1·9
Total Corn ...	2,063,972	2,196	36,451	2,241	37,312	285·9	275·7
Potatoes	98,030	702	9,764	738	10,180	23·8	22·8
Carrots	15,830	245	4,258	259	452	3·6	4·2
Beet root	152,198	4,193	64,822	4,758	73,541	73·2	85·6
Kaal root	136,912	3,393	52,442	3,771	5,893	46·1	64·3
Turnips, etc.... ...	125,580	2,727	47,419	2,897	50,373	30·6	34·8
Total Fodder Roots	430,520	10,558	168,941	11,685	186,719	153·5	188·9
Sweet roots	29,024	562	...	986	...	13·3	13·0
Cikori roots	1,433	15	...	19	...	0·4	0·5
Total Sweet Roots	30,457	567	...	1,005	...	13·7	13·5
Hay of fields... ...	539,069	1,340	...	1,230	...	67·3	60·5
Hay of watery land...	404,134	710	...	760	...	36·9	37·9
Total Hay ...	943,203	2,050	...	1,990	...	104·2	98·4
Straw...	...	...	...	...	...	91·0	87·9
Total ...	3,566,182	...	...	...	...	672·1	687·2

The total value of imports and exports of Denmark during the years 1911 and 1912 was as under :-

	Imports.		Exports.	
	Million Krones.		Million Krones.	
	1911.	1912.	1911.	1912.
Living animals	11·8	8·5	61·9	54·2
Food articles	25·3	25·8	388·0	434·6
Corn and corn goods	92·7	117·3	14·0	15·9
Fodder stuff and seeds	69·8	83·7	7·1	6·2
Grocery and fruits	51·1	54·6	5·6	12·5
Drinks	5·3	5·2	1·5	1·6
Woven articles	11·9	12·0	2·2	2·5
Yarn and twists	16·7	18·7	0·2	0·3
Manufactured dry goods	48·4	53·0	0·7	0·9
Dresses	9·7	10·7	0·6	0·7
Hides, skins, etc.	13·2	16·6	13·5	16·8
Articles made of hides, skins, etc.	7·1	7·7	0·3	0·3
Timber	37·0	41·3	0·9	1·3
Wood pulp, paper, etc	32·6	35·8	0·5	1·4
Chemicals and manures	22·6	27·2	3·6	3·2
Minerals	60·9	84·4	9·9	10·9
Metals	53·9	71·2	5·2	7·0
Ships, wagons, machines	22·7	28·9	13·1	15·9
Other goods	5·1	5·2	2·6	3·0
Total ...	623·2	740·	536·7	597·

The *exports* in agricultural produce of Denmark were as follows :-

	Million Krones.		Million Krones.	
	1909.	1910.	1911.	1912.
Butter	180	182	193	191
Milk and cream	8	12	15	23
Bacon	105	118	123	141
Eggs	26	27	29	28
Horses and foals	15	18	21	18
Cows and calves	27	34	41	37
Meat	14	17	14	30
Hides and skins	14	15	12	12
Total ...	389	422	449	484

Imports in agricultural requirements during the same years were as under :—

	Million Krones.		Million Krones.	
	1909.	1910.	1911.	1912.
Grain husks	7	4	5	7
Oil-cakes	57	51	57	67
Clover and grass seeds	8	7	7	7
Artificial manures	10	11	13	17
Barley	12	10	8	2
Maize	25	19	29	39
Oats	7	9	7	7
Fodder pea	...	0·2	0·4	5
Total ...	127	111	126	151

The average prices obtained for land produce were as follows :—

	Kr.	Kr.	Kr.	Kr.	Kr.
	1908.	1909.	1910.	1911.	1912.
Butter per 50 K. G. ...	102·5	100·5	102·5	107·0	111·5
Bacon „ „ ...	40·0	55·3	61·0	53·0	58·0
Beef „ „ ...	30·0	27·0	32·5	36·5	42·5
Eggs per 100 scores ...	128·5	136·0	130·5	136·5	142·0
Horses each (foals exempted	720·	710·	745·	759·	780·
Cows each (calves exempted)	225·	217·	243·	270·	280·

Yield of Crops from Land.—The average yield of crops per acre of land in Denmark was as under :—

Grain about 1,500 lbs.
Fruit unimportant.
Hay about 4,500 lbs.

On a farm of 10 acres, three or four cows may be kept, which will give a net yearly return of 200-240 krones per cow. (Page 86 of the Report of the Irish Deputation 1903).

A farm of 7,000 acres made a profit of £3 per acre per annum, milk being one of its principal products. Some of the farmers in Denmark maintained that but for pigs farms would not pay, while others were of opinion that cows alone paid very well.

The price of land varied from 400 krs. to 1,200 krs. per Tonde land (1⅓ acres).

The rates for labourers were :—

Men ...	600	krones	per	annum	with board and lodging.
Young men	280	,,	,,	,,	
Girls ...	170	,,	,,	,,	

Labour Unions existed in all farming districts.

Section 8.—The Danish People and their Capital.

The Danish people are very highly cultured. Every one of them is literate, literate not only in the language of the country but many of them know one or two foreign languages also, such as the English, German, French, Swedish They are well up in scientific methods of agriculture.

Financially they are in very good circumstances. Their peasantry possesses excellent dwellings of brick or stone and lime-cement, excellent agricultural machinery and plant, and live-stock. They are generally well-to-do, in excellent physique, and neat clothes. They are free from the extremes of poverty and riches, which are both abnormal conditions to be found in unhealthy regions.

As a result of good culture, the Danes are very polite and well-mannered. It is a Danish custom to greet everybody, including the servants, with *God Morgen* (good morning). Always on entering a shop, they give greetings, and say *farvel* (farewell) on leaving. Their policemen also show great respect to the public. Before answering a question, they always lift their hat and salute the questioner. When the people rise from the table they say *tak for mad* (thank you for the food) to the host, who replies *vel bekomme* (may it agree with you). Whenever any one gives you any thing, one always says *vir saa good* (be so good as to accept this), and you have to say *tak* (thank you).

The peasant is very enlightened and advanced in his methods. Education, Co-operation and Government help to small farmers lay the foundation of the farmer's prosperity. The thriving industry of the peasant farmer is quite astonishing. He is able to bring up a large educated family and live comfortably on seven or eight acres of land.

A Danish farmer with six acres of land keeps two cows, many poultry, some pigs, himself, wife and family. There is no sign of poverty among the Danes.

Denmark, though a small country, possesses many charms, which attract thousands of visitors to the land from all parts of the globe, during the summer months—July, August and September. It is not the object of these pages to give an account of its cities or towns, but the writer was so deeply impressed with the charms of Copenhagen, the Capital of Denmark, that he feels a brief account of that city will be generally interesting. Copenhagen is a very thriving and beautiful city with a population of 500,000, adorned with wide roads and numerous fine buildings of large dimensions. It has a large number of museums and other public institutions, where numerous objects of art and beauty are exhibited, and the public have various facilities for acquiring general knowledge and amusement. A brief account of the principal museums is accordingly given in the following paragraphs.

Raad-Huset, the Town Hall.—This is a beautiful palatial building of six stories and large dimensions. It has a spacious hall well provided with light through glass ceillings, an excellent apartment for officials and beautifully-arranged houses for meetings of the city fathers. On the walls of these apartments are paintings illustrating the great events in the history of the Danish nation. The whole building is well-built of red bricks and cement, has a beautiful appearance, both inside and outside, and is elegantly decorated in golden colours and furnished with rich furniture. From the top of the building, a good view can be had of the whole city and the country around.

The Rosenburg Castle, built by King Christian IV, Beloved of the People, year 1588 to 1644, where a large number of Royal relics, such as robes, uniforms, ornaments, weapons, etc., belonging to the various kings and queens of Denmark, are arranged in several apartments.

The Kongelige Bibliotek, the Royal Library, where visitors can go, take books, read them and take notes, free of charge. It has over a million books in almost all languages of the world, and has a large beautiful building with a spacious hall for reading. In one of the rooms in the upper storey are exhibited old books, many of which are of great beauty.

Among the museums, *Thorvaldsen Museum* has a unique collection of beautiful sculptures and fine art paintings. It was founded by Bertel Thorvaldsen, the famous Danish sculptor, who lived from the year 1770 to 1844. Born in a poor house, he started work at the age of 27 and produced a marvellous amount of beautiful work, which brought him enough money to start his upward career. He founded the famous Sculptors' School of Denmark and bequeathed all his works to the nation, which now form the famous Thorvaldsen Museum in Copenhagen.

The museum contains his works and collections, besides his models and sketches in plaster and his designs of the various monuments, etc., which he executed for the various countries. Among these, Indians will be glad to know, is a bust (No. 280) of Nawab Ghazi-ud-deen Haidar of Oudh, made in the year 1824. Among his collections are pictures by his contemporary artists, gems, coins, painted vases and various other antiquities which the donor acquired during the many years of his residence in Rome (Italy). The museum is a collection of a very large number of articles of exquisite beauty, which it would be difficult to find in any other museum in Europe.

Some of the paintings in the museums of Copenhagen have a great fascinating beauty which the artists have instilled into them. The portraits look as charming as if the objects painted were actually alive or real. A charming smile shown in a portrait irresistibly invokes a reciprocal smile from the spectator. Similarly, the paintings of natural scenes, trees, forests, landscapes, of animal life, etc., properly and truly executed, invoke a similar admiration and gladden the heart of the visitor.

The Kunst Industri Museet is the Royal Museum of Industrial Art of Denmark in the past ages. It has a very extensive collection of sculptural figures in marble, plaster, bronze, etc., and a very large collection of fine art paintings, representing the life, history and general conditions of the country. The exhibits are very fine, of great beauty and refinement. The pictures may be roughly classified as under: -

(*a.*) Biblical Scenes—
Madonna and Christ.
Preaching of Christ.
Sufferings of Christ, emphasizing His martyrdom.

(*b.*) Domestic life of the people—

Processions, gatherings, fairs, tradespeople.
Farmers, their dwellings and home life.
Bathing scenes.
Boating scenes.
Scenes of crops, fields, roads, paths, etc.
Household kit and household work.
Bazar scenes.
Windmills.

(*c.*) Domestic Animals—

Horses.
Herds of cows.
Flocks of sheep.
Birds and fowls.

(*d.*) Natural Scenes—

Snow.
Rivers, streams, lakes, ponds.
Parks, forests, trees.
Landscapes, hills and mounds.

(*e.*) Eatables—

Baskets of fruits.
Baskets of flowers.
Vegetables.
Meat and game.

(*f.*) Busts and figures of men, women and mythological deities.

The Ny Glyptotek of Carlsburg is a new museum in a fine spacious building, containing a choice collection of life-size figures in white marble, and art paintings of mythological deities and high personages, in exquisite workmanship of great beauty. It has also a collection of Egyptian, Roman and other antiquities.

It is one of the most beautiful museums in Europe, the gift of a single man, Capt. J. C. Jacobsen, Ph.D., brewer, who spent nearly 20 million krones, or nearly two karores of rupees, on this institution.

It may be mentioned that this nobleman had provided a number or other equally large public institutions in and about Copenhagen, *viz*: (*a*) The Students' Home, a large building which accommodates a large number of students in excellent rooms decently furnished, with halls

for reading and recreation and a beautiful park with playgrounds. (*b*) The Fredricksborg Slot, the museum of national history at Hilleród, 21 miles from Copenhagen. This is a very pretty building surrounded by water and a beautiful garden. It has a very large collection of oil paintings of a very high order. The castle was a royal residence of the Kings of Denmark for many years, and has recently, through the munificent gift of Capt. Jacobsen, been converted into this museum, which has been founded with the object of forming a home for inspiring a more comprehensive representation of the remembrances of the national history, from the introduction of Christianity until the present time. The numerous portraits of Royal personages and others exhibited there show the typical features, manners and customs of the Danes and their simplicity of life. Their priests in the former days wore round their necks frilled collars similar to those of Holland, as exhibited in the pictures in the museums of Amsterdam. In this museum the most impressive of the pictures is a large group of the Royal family of the late father of Queen Alexandra, the present Queen-mother of England. This group stands in one of the main rooms, and as one enters the corridor leading into that room, one perceives as if the Royal family were actually holding a meeting. There she is seen in her early life standing by the side of her husband, who was the Prince of Wales at the time, and latterly King Edward VII of England and Emperor of India. In the whole group of the Royal party she looks the prettiest. This picture shows her Danish features more clearly than the one in the Ny Carlsberg Glyptotek.

The Landskole and Folke Museum at Lyngby.—This is an Agricultural School situated in the midst of a large beautiful park where students for agricultural training receive instruction, one course running up to six months and the other for nine months. Attached to this school is the Folke Museum, embodying old typical cottages and old agricultural implements of Denmark, and as such they are very interesting in studying the progress made by the people of Denmark.

Hirschsprung Samlinger is another picture gallery. It has a beautiful collection of modern paintings of the nineteenth century by Danish artists. It was founded and presented to the Danish State by Heinrich Hirschsprung

and Huston (wife) in 1902 at a cost of about 1,300,000 krones on the pictures and 300,000 krones on the building. The donor was a merchant dealing in tobacco and cigars, and died about eight years ago. The museum was opened in July 1911 and is maintained by the State. The pictures are representative of life and scenes in Denmark.

The last but not the least may be mentioned the *Folke Museum* in the Prinses Palae (Princes Palace), which is divided into two collections, *viz*: (1) ethnographic section of the world, and (2) the Danish collection. In the former, India is represented to a small extent by its mythological figures; its deficiences are, however, well made up with the beautiful figures of Lord Budha and ethnographic exhibits from Siam, China and Japan. Among the ethnographic specimens, they have all sorts of articles which have been in use among the nations of the world for their daily life, as also models representing the features of the people. It is a wonderful collection of the primitive articles of furniture, weapons, dresses, ornaments, conveyances, music, etc., including among them wooden spoons and dishes, dresses of skins and other materials, weapons of stone, bone and iron, arrow-heads of stone, iron and bone; clothes made of various barks; primitive boats made of a single log of wood; carts; figures of deities, among which were a large number of beautiful fine stone carvings of Hindu and Budhistic figures. The classification of these articles has been very skilfully carried out.

The collection of Danish antiquities is still more interesting. It has a large number of ethnographic articles found in Denmark from time to time. Of these many articles are of the same designs and make as Indians have been using. A few of them belonging to the prehistoric days are noted below:—

(1) Earthen pots (collection No. 296 of their catalogue).
(2) Combs of ivory (collection Nos. 296, 318, etc.).
(3) Armours.
(4) Iron heads of arrows.
(5) Iron stirrups.
(6) Gold and silver rings.
(7) Neck chains (kanthis and hamels of gold coins).
(8) Necklets (hanslis).

(9) Armlets (bajubands and tariyas).

(10) Bangles.

(11) Wristlets (pahunchis) (collections Nos. 170 to 172, 318, 345, 346, 357, and 360).

(12) Stone grinding mills (collection No. 308).

The similarity in designs of these Danish antiquities with those used in India furnished a link leading to the kinship which exists between the Indian Aryans and the Scandinavians. The Danish articles mentioned above were found or dug up from various places in Denmark, as shown in the printed catalogue of the museum. The three Scandinavian countries, viz., Sweden, Norway and Denmark, formed at one time one empire, and similar specimens of ornaments, tools and implements are stored also in the museums of the other two countries, viz., at Christiania, Bergen and Stockholm. The local names of the two former countries are Sverige and Norge respectively, even now. These two words sound like the Swarga and Narka of our Sanskrit literature, and give a key to the "Arctic Home" of the Indian Aryans as described in the Vedic literature. These words indicate that the Arctic Home of the ancient Aryans was nowhere but in the Scandinavian countries, Sweden and Norway specially. In the Sanskrit language Swarga means a paradise, a place of pleasure and happiness, while Narka applies to some inferior place. With all deference to our Norwegian brethren, to their lovely country as we find it now, it may be stated that the difference between the Swarga and Narka of the ancient records refers to the olden days only. The identity of Sverige and Norge with the Aryan home "Swarga and Narka," as described in the Vedas, is claimed by the writer of these lines, who is going further into the matter and collecting further evidence on the point.

It is hoped the people of India and Europe will some day fully realise their ancient kinship and will have free intercourse between them. By this knowledge the interest now taken in international matters will materially increase and the peoples will evince a practical love for one another.

CHAPTER II.

Agricultural Associations in Denmark.

Section 1.—The Main Organisation.

Apart from the Government Department of Agriculture, the people of Denmark have a large organisation of their own Co-operative Unions and Associations for the advancement of practical agriculture in its various phases and the profitable manufacture and sale of agricultural produce.

Besides the numerous Co-operative Unions organised under the auspices of the Agricultural Associations, for special purposes, such as—

(1) Cattle-breeding, cow milk-testing, dairying, sale of milk, butter and cheese;
(2) Pig-breeding, bacon-curing, sale of bacon;
(3) Poultry-keeping, Egg collection and export;
(4) Joint purchase of cattle food, seeds, manures, dairy coal and machinery;
(5) Joint sale of dry roots like potatoes, vegetables, straw and live-stock;
(6) Shows and exhibitions of live-stock, butter, cheese, etc.

There are two great organisations of agriculturists in Denmark, viz :—

(1) Of large farmers whose Unions are known as Landbo-foreninger,
(2) Of small-holders usually styled as Husmands (housemen),

which look after the agricultural development and land economics generally. Both of them have their independent organisations in the villages, in the towns, in the provinces and in the capital.

Both of them receive grants from the State and are bound to furnish yearly balance sheets and a full report of their yearly operations to the Minister of Agriculture.

The following are the numbers and names of their Unions, with the years in which they were originally started :—

LANDBO-FORENINGER.

120 Local Unions (Landbo-foreninger), 1801.

5 Provincial Associations (Samvirkende Landbo-foreninger), 1872.

1 Central Association (De Samvirkende Danske Landbo-foreninger), 1893.

HUSMANDS-FORENINGER.

838 Local Unions (Husmands-foreninger), 1901.

5 Provincial Associations (Samvirkende Husmands-foreninger), 1902.

1 Central Association (De Samvirkende Danske Husmands-foreninger), 1906.

Section 2.—The Royal Danish Agricultural Society.

The oldest association is De Kongelige Dansk Landhusholdnings Selskab (the Royal Danish Agricultural Society), which has been established since the year 1769. It is an influential Central Federation and is often consulted by the Government as an advisory board. In 1872 the Society established its direct connection with the Local Landbo Unions by allowing them to elect half of its Directors. Its activities cover the whole of agricultural industry in Denmark, and its affairs are directed by a council consisting of 3 Presidents and 36 Members, elected by and from amongst the members of the Society. Their election holds good for three years. The three Presidents and 18 of the Members of Council are elected at a general meeting of members of the Society. Besides these, one Member for the Council, who must be a resident of the locality and a member of the Society, is elected for every amt (district) by the Local Landbo Unions in the amt.

The general meeting of members takes place during the last quarter of every year. The yearly expenses of the Society amount to 108,000 krones. It has an interest bearing capital of 300,000 krones made up of funds and

bequests. The annual subscription from each of the members is 20 krones and the total number of members in 1913 was 799. His Majesty the King of Denmark is the patron of the Society.

The Presidents have the immediate direction of all that concerns the Society. The council elects from among its members committees for various matters, there being a separate committee for each of the following subjects:—

(1) Conduct of field experiments with implements and machinery for various purposes.
(2) Control over corn, cattle food and white kaal.
(3) Organisation of excursion parties in and out of Denmark for the purpose of instruction.
(4) Practical training of students preparing for the Agricultural College, Copenhagen.
(5) Advancement of goat-breeding.
(6) Sale of Danish seeds to foreign countries.
(7) Distribution of prizes for the keeping and management of small-holdings.
(8) Organisation of agricultural societies where such may be needed.

General gatherings of agriculturists of Denmark are held occasionally by turns in different towns, under the auspices of the Royal Danish Agricultural Society. The procedure followed is, that the Society makes an announcement a year before the gathering is to assemble, and calls a meeting of delegates from—

(1) The Council of the Royal Society.
(2) The Local Landbo Unions.
(3) The towns desiring to be the seat of the gathering.

At the meeting of these delegates are settled the time and place of the general gathering; and a reception committee, consisting of a President, a Vice-President and three members is appointed, as also the judges for the stock shows and exhibitions to be held at the same time.

The constitution, objects and plans of working of the agricultural unions of the two classes mentioned in the second para. of this chapter are given in the following paragraphs.

Section 3.—Landbo-foreninger.

De Samvirkende Danske Landbo-foreninger (the Central Danish Agricultural Association).

Its purpose is to advance Danish agriculture by co-operation among the Provincial Associations. Accordingly it embraces the following Provincial Associations :—

(1) Foreningen of Jyske Landbo-foreninger (1872).
(2) De Samvirkende Landbo-foreninger i Sjaellands stift (1880).
(3) De Samvirkende Landbo-foreninger i Fyns stift (1902).
(4) De Samvirkende Landbo-foreninger i Lolland-falster (1906).
(5) Bornholms Landókonomiske-foreninger (1831).

While these Provincial Associations are perfectly independent and manage their own internal affairs, the Central Association is a national organisation of the Provincial Associations and represents them in their external affairs, especially in relation to Government and other sources of income.

The expenses of the Central Association are shared by the five Provincial Associations in the following proportions respectively:—

$\frac{14}{29}$, $\frac{8}{29}$, $\frac{4}{29}$, $\frac{2}{29}$ and $\frac{1}{29} = \frac{29}{29}$.

The managing committee of the Central Association consists of 12 office-bearers of the Provincial Associations, viz:—

5 Foremands (presidents) of the five Associations.
3 Vice-foremands of the first three Associations.
4 Secretaries of the first four Associations.

The Foremands and the Secretaries of the first three Associations act as the President and the Secretary of the managing committee in succession for one year at a time and in the order the Associations are named.

This committee meets four times in a year. Its decisions concern only what the committee itself will do and thinks itself competent to do, and are binding upon the committee only when at least two members from each Association and one from Bornholm vote for it.

The Provincial Agricultural Associations.

The object of these Associations is to endeavour for the advancement of agriculture and development of agricultural relations in the province. All Landbo-foreninger and other Societies in the province whose work essentially concerns

land economics, are eligible for membership of the Association, provided they have been in existence at least one year and have at least 150 paying members, with a minimum yearly income of 300 krones, of which sum a certain percentage (5% is fixed in Jutland, 10% in Seeland, 20% in Funen, 40% in Lolland-falster) is contributed towards the expenses of the Provincial Association.

Individuals may also become members of the Association on payment of a subscription of 10 krones yearly, or 200 krones for life.

The Association holds yearly meetings of delegates, to which every Landbo-forening member of the Association can send its delegates.

These delegates and the Directors of the Provincial Associations and the honorary members alone have a right to take part in the discussions and to vote at the meetings.

The administrative body (Bestyrelsen), which manages the affairs of the Association, is elected for a term of years at a meeting of the delegates, from amongst the members of the Local Unions (Landbo-foreninger), which are members of the Association, one member being usually chosen for each amt (district) by the delegates of the respective amts. These members again elect from among themselves one President and one Vice-President, and small standing committees to conduct the business in various branches of the Association's activities. The following are the principal committees in the Provincial Associations:—

(1) Business Committee (Forretnings-Udvalget).
(2) Committee for maintaining books of the genealogy of live-stock (Stambogføring).
(3) Committee for the breeding of cows.
(4) Committee for the breeding of heavy horses.
(5) Committee for the breeding of light horses.
(6) Committee for the breeding of pigs.
(7) Committee for the breeding of sheep.
(8) Committee for plant culture.
(9) Committee for dairying.
(10) Committee for lectures on land economics.
(11) Committee for competitions between whole herds of live-stock.
(12) Committee for improvements in agricultural account book-keeping.
(13) Committee for organisation of animal shows.
(14) Committee for experiments with implements and machinery.
(15) Committee for judging of whole (Markburg).

The following table exhibits the accounts of the Seeland Provincial Agricultural Union for the official year 1912-13 :—

Ledger Heads.	Particulars.	Income.	Expenses.
		Krones.	Krones.
	Balance from previous account	10,163	...
1	Interest on Association's cash balance...	107	..
2	Contribution from local Landbo Unions...	5,719	...
3	Countribution from Government for expenses of the Association	3,000	...
4	Other aims and objects	2,000	...
5	Genealogical book management ...	5,010	1,334
6	Improvement of plant culture	29,747	32,923
7	Offspring examination	2,700	1,571
8	Pig-breeding centres	500	500
9	Contribution from the Baben Levetzauske Fund	400	...
10	Sales of publications	76	...
11	Competitions between whole herds ...	4,640	2,888
12	Salaries of establishment	...	2,600
13	Office rent and plant	...	1,005
14	Delegates' meetings	...	1,896
15	Presidents' meetings	...	349
16	Directors' meetings	...	371
17	Committee meetings	...	262
18	Annual report	...	797
19	Printing	...	97
20	Contribution to Samvirkende Danske Landbo-foreninger		1,600
21	Postage, telephone, telegrams	...	485
22	Office assistants	...	599
23	Light and fire	...	165
24	New year's expenses	...	70
25	Office expenses	...	678
26	Unforeseen income and expenses ...	...	304
27	Loan in Danish Arbejder Bank ...	...	4,000
28	Cash balance carried to next account belonging to the following ledger heads :—		
	5. Genealogical Book ... 1,249·65		
	7. Offspring Examination 2,074·89		
	11. Competitions ... 2,271·89		
	Provincial Unions ... 3,971·58		
		...	9,568
	TOTAL ...	64,062	64,062

Landbo-foreninger (*Local Agricultural Unions*).

There were over 120 Local Unions with 96,800 members subscribing 217,000 krones annually, and receiving 195,000 krones from the Government, in the different districts and parts of Denmark. Their object is to advance the development of general land economy by means of popular lectures, discussions, meetings, live-stock shows and exhibitions, experiments with local field conditions, and establishing of Unions for specific branches of agricultural industry.

The work of each Union is directed by a committee elected at a general meeting of members. This again, or the committee itself, elects a formand and a vice-formand. The General Assembly meets twice a year.

The grant from the Government is towards (1) the salary of expert adviser (konsulent), (2) prizes at live-stock shows, and (3) advancement of plant culture, etc.

State grants towards the salary of konsulent are made under the law of 8th June 1912, to the extent of half the yearly remuneration paid to the adviser. This grant is contingent upon the recommendation of the Provincial Association, through which applications have to be made to the Agricultural Ministry before the month of May.

State contribution towards the prizes for cattle shows is also governed by the same law of 8th June 1912. In amount it equals the sums spent by the Local Unions themselves upon such prizes. The restrictions are—

(1) That no Union which has not been in existence for one year, or does not consist of at least 150 members, with an annual subscription of 300 krones, can obtain the grant.

(2) That in no case must the grant go above four times the number of subscribing members of a Union.

Local Unions which hold a yearly live-stock show in common can have the grant augmented by 10 per cent., by application to the Minister of Agriculture before the month of March, through the Provincial Association.

The following table shows the names, years of formation, numbers of members, rates of subscription and annual income of typical Local Landbo Unions :—

Name of Union.	Year of formation.	No. of Members.	Rate of Annual Subscription.	Total Annual Income of Union.	Remarks.
			Krones.	Krones.	
Kóbenhavn Amts Landbo-forening	1841	651	6	3,850	
Roskilde Amts Landbo-forening	1870	718	1 to 4 (*a*) (*b*)	2,454	(*a*) According to Hartkorn. (*b*) Big farmers 4 krones, minor land-owners 2 krones.
Frederiksborg Amts Landbo-forening ...	1843	1,534	...	5,600	
Holbaek Amts ókonomiske Selskab... ...	1812	220	8	1,800	Capital 39,000 krones.
Landbo-forening... ...	1865	950	(*c*)	3,000	(*c*) Gaardmaend 4 krones, Minor land-owners, 1-2 krones.
Odsherreds Landbrugs-forening	1875	455	0·75 to 4· (*a*)	980	
Soró og Omegns Landbo-forening	1901	674	(*d*)	1,270	(*d*) Big farmers 4 krones, Gaardmaend 3 krones, Parcellister 2 krones, Husmaend 1 krone.
Praesto Amts Landbo ...	1839	296	1-10 (*a*)	1,600	
,, Minor landowners	1862	1,540	2-4 (*a*)	4,500	
Bornholms Land-ókonomiske-forening ...	1831	868	1-4 (*a*)	1,900	Capital 2,000 krones.
Maribo Amts Ókonomiske Selskab	1809	941	1-10 (*a*)	3,900	,, 10,000 ,,
Fyns Stifts patriotiske Selskab	1810	540	1-8 (*a*)	2,800	,, 60,000 ,,
Tórring og Omegns Landbo-forening	1897	507	1-10 (*e*)	800	(*e*) Óre 25 per cow, subject to a minimum of 1 krone and maximum of 10 krones.
Aalborg Amts Landbo-foreming	1844	5,350	1-25 (*a*)	9,700	Capital 6,000 krones.

Section 4.—Small-holders' Unions.

De Samvirkende Danske Husmands-foreninger (the Co-operative Danish Small-holders' Union).

This is the central body and represents the Small-holders' Unions of the whole of Denmark. The object of this Union is to create the greatest possible co-operation and uniformity in the working plans of the different Provincial Associations, while maintaining their independence, and to represent all Small-holders' Unions under a common direction against the law-giving bodies of the State.

Its affairs are managed by a direction of 11 members elected from the Provincial Small-holders' Associations in the following numbers :—

4 from Jutland.
3 from Seeland.
2 from Funen.
1 from Lolland-Falster.
1 from Bornholm.

This body elects for itself a President and a Vice-President for one year, and also a business committee (Forretnings Udvalg) of five members, and apppoints a Secretary. Its expenses are met by the Provincial Associations in proportion to the number of members. The meeting of the Union (Lands-staevne) is held just before every election to the House of Commons (Folketing).

The following grants were allowed by the Government to this Union for the financial year 1913-14 :—

	Krones.
To cover expenses of Unions	5,500
For plant culture	35,000
For prizes for best cottage allotments and travelling of small-holders ...	90,000
Total ...	130,500

De Samirkende Husmands-foreninger (Small-holders' Provincial Unions).

There are five Provincial Unions, one for each of the five Provinces, viz., Jutland, Seeland, Funen, Bornholm, and

Lolland-Falster. Their object is to get together the Local Unions of small-holders in the province for the solution of common questions. All Unions of small-holders in the province, whether embracing one or more parishes (sogne), can join the Provincial Union as members. The highest authority in the Union is the delegates' meeting, which meets once a year and elects the administrative body (bestyrelses), the members of the managing committee (udvalgsmedlemmer) and the auditors (revisorer). Every associated Union can send its delegates in proportion to the number of its members, to the yearly meetings of the Provincial Union.

The administrative body of the Provincial Union, which consists of a Foremand and 5 to 11 members, represents the interests of the Union as opposed to those of the State, of the Landbo-foreninger, of the Stiftelser (almshouse), and of other institutions. The Local Unions contribute yearly 10 to 15 óre per member of their body towards the expenses of the Provincial Union.

Husmands-foreninger (Local Union of Small-holders).

These Unions began to spring up from the year 1901. In 1913 there were 838 of such Unions in Denmark, with a membership of 49,300. They are generally Parish Unions, which have for their object the advancement and development of small-holdings and of the small-holders' extra sources of income, by giving support and advice to members in the form of lectures on agriculture, stock-keeping, seed improvement, horticulture, poultry-keeping, bee-keeping, home industries, etc. Any one who would support the Union and who does not own or cultivate land exceeding $1\frac{1}{2}$ Tonde Hartkorn, can become a member of the Union. The Unions are managed by a committee generally elected at a general meeting of the members. The committee elects the Chairman. The Housemen's Union, like the Landbo Union, receives upon the same conditions, State grants towards the advancement of plant culture, counsellor's services, etc. The subscription from members varies in different districts from 50 óre to 1 krone per member yearly.

The following table gives the particulars of Housemen's Local Unions :—

Name of Union.	Year of Formation.	No of Members.	Rate of Yearly Subscription.	Total Income of Union.	Remarks.
			Krone.	Krones.	
De Samvirkende Bornholms ...	1903	1,013	0·50 to 1·10	900	
De Samvirkende Lolland-Falster ...	1905	2,249	0·20	450	
De Samvirkende Fyns Stift	1902	5,000	0·50 to 1·00	4,500	
Randers og Omegn Forening	1902	582	0·50 to 1·0	450	
Hjórring Amts Forening	1904	1,230	do	800	
"Fremad" Forening	1901	763	0·55	419	
Ringkóbing Amts Forening	1913	...	0·05	...	
Jysk Husmand-forening	1882	5,000	1·75 to 5·40	...	Capital 77,000 krs.
Samsó Husmands and Laborers' Union ...	1888	400	1·50	...	Capital 550 krs.

CHAPTER III.

Co-operative Unions in Denmark.

The history of Denmark during the last century is without a parallel. Before the year 1849, these descendants of an originally free and independent peasantry had for centuries suffered great restrictions and exactions. It was King Frederik VII, who, on succeeding to the throne of Denmark, on the death of his father Christian the Eighth, on January 20, 1848, gave the promise of a liberal government, and fulfilled it by the Ground-law of June 5th, 1849, which, with a few modifications of trivial nature, is still in force (see Chapter I, Section 3). Progress in Denmark began at that time. The first Co-operative Dairy in Denmark was started in 1882. The other Co-operative Unions and Societies followed, the important ones being the Live-stock Breeding and Control Unions, the Unions for joint purchase of agricultural requirements and for joint manufacture, local sale and export of agricultural produce.

The co-operative concerns are managed entirely by the agriculturists themselves, the cottager owning a small farm with only one cow having an equal vote with the large farmer owning many cows and other live stock.

The farmers have a marvellous system of co-operation. Carts collect farm produce daily from the farmers' doors and transport it to the nearest factory or depôt belonging to the union of farmers, where the produce is efficiently and most economically manufactured and disposed of as a joint property to best advantage, the farmers getting all the profits after meeting the proportionate expenses of the joint concern. For instance, the milk for co-operative dairies is fetched in the morning on carts belonging generally to the Union. Its value in cream (ascertained periodically through the Gerber apparatus) being credited to the owner and the skim and butter-milk returned to him for use on his farm, chiefly for feeding pigs. The advantage of this co-operative system is, that considerable economies are effected in the cost of manufacture, and the quality and quantity of out-turn are greatly enhanced, while the market for the produce of even an isolated farm is practically brought to its door, enabling even small quanti-

ties of surplus produce over what is required for the farmer's own domestic use being sold at the same rates as are obtainable for large quantities. Before this system began a farmer might do well enough if he lived near a town, but if his farm happened to be some miles away, no profitable sale could he have for his produce.

The success of the Danish Co-operative System may be attributed to—

(1) The system of general education conducted in their primary schools, their Folkehoj-skoler, and their agricultural schools.

(2) The universal application of the co-operative principle to every department of agriculture and the invariable obligation imposed upon the members to support the institutions founded by themselves and maintained in their interests against all temptation of "rings" or "syndicates.

(3) The practical interest which the Government of the country takes in these co-operative organizations. The whole of Denmark is divided into a number of districts, and in each of these districts conferences of co-operators are held at regular intervals. These conferences often invite the attendance of a public officer (Stats Konsulent), whose function it is to advise the Minister for Agriculture. All questions of public policy affecting agriculture in Denmark are framed in accordance with the opinion advanced by these conferences. At the same time the various experts employed by the Government are in constant touch with the societies, and are always available to give such technical advice as may be useful in the farming industry.

(4) The unremitting industry and zeal of the people themselves.

Farmers take a keen interest in the management of their co-operative unions and societies. Every one of them attends the meetings and studies the transactions carefully.

The Folkehoj-skoler aim at giving every peasant a general education, while the agricultural schools aim at making him a practical agriculturist. Both the high

schools and the agricultural schools are assisted by Government grants. Besides these schools, the Government have established experimental stations.

Apart from the liberal laws in the general administration of the country, direct assistance is given by Government in the following matters :—

(1) Comprehensive system of education of both sexes of every one from the age of six upwards.

(2) Railways as part of co-operative work are mostly owned and worked by the State, and Shipping Companies are allowed subsidies in order to convey agricultural produce to England by regular rapid service of steamers.

(3) Supply of expert advisers to farmers.

(4) Government system of agricultural credit for small farmers, under which the Government have advanced a sum of 5,000,000 krones at a low rate of interest, from which farmers desiring to buy a farm can have a loan to the extent of $\frac{9}{10}$ths of the value of the farm (a small farm costing from 6,500 to 8,000 krones), and the loan is repaid in half-yearly instalments, made up of 3% interest and 1% towards liquidation of debt.

Co-operation among agriculturists begins with their arrangements for improving the breeds of live-stock, for testing and buying fertilizers, seeds and cattle-food, and continues through various arrangements employed in the joint manufacture of articles like butter, cheese, and bacon, and in the collection, local sale and export of land produce, such as butter, bacon, cheese, eggs, potatoes and vegetables, live-stock and meat, hay and straw, etc. They have gone still further and have established societies for the mutual insurance of property, live-stock, and crops against accidents, hail and storms, also for life assurance Their credit societies easily raise loans for long terms upon land bonds, which are negotiable, like Government Promissory Notes, in the open market at low rates of interest varying from $3\frac{1}{2}$ to 5% per annum. For short term loans there are State-aided Associations to advance temporary working loans. For banking business they have started a Co-operative Bank only from October, 1914. Hitherto their wants

in this respect were met by ordinary joint-stock Banks and Savings Banks.

Apart from the application of co-operation to the three main branches of agricultural trade (butter, bacon and eggs) the spirit of association manifests itself everywhere. There are co-operative societies for the improvement of breeds of cattle, pigs and horses, sheep and poultry; for milk control, and for the sale of other agricultural produce, such as potatoes, cabbage, live-stock, hay and straw; and for the joint purchase and distribution of seeds, agricultural implements, food-stuffs for live-stock, manures, dairy machinery and plant, and general household requirements, including clothes, boots, etc.

In agricultural industry in Denmark, cows stand first as a source of profit, then come pigs. In many of the farms, cows alone pay splendidly, and as a matter of fact some of the larger farmers do not keep pigs or poultry.

There is almost invariably a distinct organisation for each form of business. A separate body is formed for dairy work, for live-stock improvement, for control work, for egg collection, for purchase of manures and seeds, etc., in each district. There is only one exception to this system, and that is in the case of eggs, which are dealt with in some places by Co-operative Bacon Factories for the convenience of their members. They have business relations between the different Unions. For example, if a man who obtained manures and seeds through the Agricultural Purchase Society could not pay in accordance with the rules, the amount would be deducted from his milk account at the Co-operative Dairy.

The production of butter, bacon and eggs practically absorb the whole energy of the Danish farmers. The whole of their agricultural produce is converted into these three articles for purposes of export to foreign countries. The other articles, such as grain, they grow only for their own requirements. In many cases they import such articles from Russia, America, China, England, etc., to supply their wants.

Their efforts are directed not only to increase the production of these articles but to improve their quality also. The work of the Local Unions is constantly under the supervision of central committees, who watch most carefully everything likely to improve the efficiency of the business

and supply all concerned with the most up-to-date information, both as to methods of production and access to markets.

Farmers themselves are members of co-operative factories, which are established in localities most convenient in each district, where farm produce is converted into marketable articles and disposed of. Some of these factories have combined in establishing business houses in foreign countries like England for the sale of their produce, so that the farmers have the whole of the business in connection with their produce in their own hands.

As a rule no share capital is raised. In some cases only members have to pay a small sum of from 3 to 5 krones as a fee for membership, which is refunded when a member leaves the union. Working capital is generally borrowed from ordinary banks at interest which varies from $3\frac{1}{2}$ to 5 per cent. per annum on the joint and several security of all members.

The preliminary organization of all kinds of agricultural societies is to ascertain—

(*a*) The quantity of raw material available in the particular district for the purpose of the society.

(*b*) The extent to which the farmers were prepared on the principle of "each for all and all for each" to pledge themselves to secure the necessary capital to enable the business of the society to be successfully carried on. This is accomplished in giving binding effect to the two-fold agreement, namely, that they should dispose of their produce only through their own society, and that they should be jointly and severally responsible for its liabilities.

Upon completion of these preliminaries, necessary capital is borrowed from a bank upon the joint and several responsibility of all members, and the factory established on a central spot.

By their local unions and provincial associations, they have very materially improved their live-stock, and have cheapened the cost of production and manufacture, improving at the same time the qualities and quantities of their produce. And by the joint sale of their produce they obtain the highest prices obtainable. Similarly by the joint purchase of their requirements in seeds, manures,

agricultural implements, factory machines, etc., they obtain these at the lowest rates and upon most favourable terms and conditions

From para. 31, under the description of the Trifolium Dairy (Chapter VIII), it will be observed that by joint working every particle of farm produce is utilized to the fullest extent possible and disposed of at the highest price obtainable, which would not be possible if small farmers were to work individually. It demonstrates the Danish axiom that 1 + 1 is more than the arithmetical sum of 2. It is through a realization of this fact that Danes have brought the whole of their agricultural and other industries and concerns under co-operative unions or societies, with federal organizations for a systematic union among those having common interests of a like nature.

The co-operative bodies in Denmark may be divided under the following heads :—

(1) Commercial Societies for manufacture, local sale and export of Danish agricultural produce and for local purchase and import of agricultural requisites for Denmark.

(2) Non-commercial Unions for raising the quality and quantity of milk and butter yield from cows and for improving the breeds of cattle and other live-stock.

Under the second head come chiefly the live-stock breeding operations and the control arrangements for recording the yield of milk from cows and for analysing the samples of the same to ascertain the percentage of butter-fat, also for making experiments with cattle food so as to increase the yield of milk and butter-fat and to exclude unprofitable animals. These arrangements and institutions in connection therewith are very important, as financial success of milch cattle depends almost entirely upon these initial measures. The system of working the control arrangements is embodied in Chapter VI.

Among the Commercial Societies they have for (*a*) local sale and export—

(1) Co-operative Dairies, and Butter sale and export Associations.

(2) Co-operative Bacon Factories, and the Danish Bacon Company in London.

(3) Egg Collection Centres and the Egg Export Association.
(4) Associations for export of live-stock and meat.
(5) Associations for export of other agricultural produce, such as potatoes, cabbage and cauliflowers, roots, fruits, hay, straw, etc.;

and (*b*) for local purchase, import and distribution, the great Co-operative Association for Household Supplies, and the Provincial Associations for the purchase of fodder stuffs, seeds and dairy machinery.

Co-operative Dairies.—The first Co-operative Dairy was established in Denmark in the year 1882. There were 1,190 of such dairies using the milk of 1,282,254 cows in 1912 in the whole country, of which 268 dairies sold their butter through the six Butter Export Associations. The total cost of founding these dairies, was 35 million krones. The remaining dairies disposed of their produce either locally or through agents in foreign countries. The system of working, accounting and payment to members of Co-operative Dairies and Butter Export Associations is given in Chapters VII, VIII, IX, and X.

Bacon Factories.—The first Co-operative Bacon Factory in Denmark was started in the year 1887. There were 45 co-operative and 22 private factories in 1912 in the country, with three Provincial Associations. Cost of founding the Co-operative Factories and their working capital amounted to 10 million krones in 1912. The system followed in these factories is described in Chapter XI.

The central body of the Co-operative Bacon Factories has a very powerful organization, consisting of representatives from all the committees of the factories and embracing all the managers. Its principal function is to diffuse immediately the latest intelligence regarding the bacon industry among all concerned. The head office is furnished weekly with complete returns of the business transacted at each Co-operative Bacon Factory, giving the cost of production and the actual market returns of bacon sold. This information is embodied in a circular which is sent out to all the Bacon Factories to enable them to see how they stand in relation to each other.

The Danish Farmers' Co-operative Egg Export Association.—This association is very well organized. The whole of the egg export business of 45,000 members in 550 local

centres is conducted by the head-office of the association in Copenhagen. It has nine despatching stations in Denmark. The only division in this trade is that some of the farmers who are members of the Co-operative Bacon Factories find it convenient to dispose of their eggs through those factories of which they have been members for years, thereby creating unintentionally a sort of competition in the trade, which is inconsistent with one of the principal aims with which co-operative unions have been established. Chapter XII gives the details of working of this Co-operative Association.

For household needs of the people generally, they have the large association known as Faelles-foreninger for Danmarks Brugs-foreninger, which has retail branches at all places in the country, and has factories and depôts at the principal centres, with its chief house in Copenhagen.

This association and the Farmers' Egg Export Association have what may be called complete organizations, with links from the country cottages complete up to the provincial towns and the metropolis.

Kreatur Eksport-foreninger.—These societies are for the export of live-stock and meat. There were nine of them established at Hurup, Swedsted, Lógstór, Farup, Nykobing J., Skive, Ringkobing, Randers, and Nykobing F., with a membership of 7,696 persons owning stock of over five million krones.

Danske Landmaends Eksport-forening of Landbrugs Produktor (Danish Farmers' Export Society for Land Produce).—There were six of these societies established at Kóbenhavn, Aalborg, Randers, Kolind, Hobro, and Asnaes. They dealt with the sale of hay, straw, vegetables, such as cabbage, cauliflower; roots like potatoes, beet, kaal, carrots, sweet roots; etc. The estimated value of the annual exports of the first four was 281,000 krones, and their members numbered about 1,000. These societies were in their infancy, having started their business only from 1912.

Danish Farmers' Co-operative Supply Association.—In almost every parish in Denmark facilities are provided, by means of which the agricultural requirements—seeds, manures, machinery, food-stuffs for cattle, etc., are placed within the reach of the farmers, in the best possible

condition and at the lowest prices. Local societies for the retail of these articles are established in different districts. These are affiliated to a number of federations, each of which covers a large section of the country and provides for all the local societies affiliated to it.

Throughout the country there are numerous unions and associations now at work, and the principle which universally governs all co-operative enterprises in Denmark, namely, that the members of the society must be bound for a period of years to carry out all purchases or sales through their own society and also be jointly and severally guarantors for its finances, is rigidly adhered to.

In the beginning, traders looked upon the advent of these societies with much concern and endeavoured to prevent their establishment. The Danish farmers were, however, determined to proceed with the formation of their unions for the purpose of purchase and sale; and since their establishment, the traders have to some extent changed their opinion. They quickly perceived that each association tended enormously to enhance the productive capacity of the farmers and that such increase in production reacted upon the wealth of the country as a whole, and consequently in, of course, a lesser degree, increased the general business of traders in the towns and villages. At the present time many of the Danish traders are, as far as is compatible, advocates of co-operative production and co-operative distribution in Danish farming.

The whole of the farm purchases are on a cash basis, the longest credit being a month. With the exception of a few, specially organised societies take charge of the purchase and distribution of farm requisites, but as the sphere of operations of these societies generally coincides with the area covered by the local dairy, and as the society itself is usually made up of the same members as those in the co-operative dairy, arrangements are always made between the distribution society and the dairy, so as to secure payments monthly, or for such supplies as farmers may like.

There are hardly any debts due to merchants by the farmers. In consequence of the regular receipts for their agricultural output from the various co-operative societies, the system of monthly payments has become almost universal. This system naturally places the peasant in a position

of security and independence which materially adds to his efficiency as an agriculturist and to his social status as a citizen. The surplus profits which he receives half-yearly or yearly, go towards his profits to be utilized on improvement of his farm and stock.

The most interesting feature in every form of co-operation in Denmark is the extraordinary fidelity universally observed towards their own institution by the people who participate in them. A member of a Danish co-operative society deliberately violating the rules would have certainly a very uncomfortable time of it in his district. Every one feels that the creamery or the other factory has been organised to develop the people's industry, and that, with its success or failure, the welfare of the people must stand or fall, and it is really astonishing to find extremely few cases of expulsion of members because of fraud perpetrated upon their society. In this way co-operation has materially assisted in the development of the Danish character.

Only 12 out of the 45 Co-operative Bacon Factories had combined in establishing their sale-house in London; and of the 1,190 Co-operative Dairies, only 268 had joined the Butter Export Associations. The other bacon factories and dairies disposed of their produce individually. The egg trade was also divided among several bacon factories and the Egg Export Association. In order to have the full benefits of co-operation, the whole trade of the country, or of each province in each important commodity, should be under one central direction to avoid unnecessary competition and loss by the lowering of prices. Denmark had, however, done a good deal to combine producers and consumers of various sorts of articles. It is not always possible to attain the highest goal. Ideal associations are gradually formed as the people advance in general culture and business principles. To remedy existing defects and to complete the organisation, efforts were being made by the leaders of the co-operative movement in Denmark, who were incessantly working towards higher developments day by day. Towards this end they have a central committee (andelsudvalget) consisting of 16 members representing the commercial bodies of most of the co-operative unions of Denmark. Its head-quarters are at Aarhus in Jutland.

The co-operative movement in Denmark has not only benefited the individual farmers but it has also carried its benefits to benevolent channels. The Co-operative Unions have combined themselves in founding a sanatorium at Skive since the year 1904. In 1912 there were 1,056 unions with 180,265 members, who subscribed 3 krones each annually towards this charitable institution, the total subscriptions amounting to 539,805 krones for the year. Among the subscribers were:—

707 Co-operative Dairies with	105,689	members.
367 General Supply Unions ,,	43,001	,,
21 Egg Sales Circles ,,	1,413	,,
11 Bacon Factories ,,	26,132	,,
10 Other Co-operative Unions	2,030	,,
1,056	180,265	,,

The total business done by the commercial Co-operative Associations of Denmark during the year 1912 amounted to a total of 594,200,000 krones, as detailed below:—

(*1*) *Agricultural Purchases—*

	Million krs.
Jysk foderstoffer-retning	25·9
Oernes Indkób Foderstoffer	5·3
Fyns do.	3·2
Lollandske Mejeriers og Andels haveres Faellesindkob	1·0
Dansk Andels Gódnings	3·5
Rinkobing Amt Indkób-Forening for Foderstoffer	2·4
De Danske Mejeriers Faellesindkób ...	2·1
Andels Elektricitets Vaerker Indtaegt ...	2·0
	45·4

(*2*) *Agricultural Productions and Sales Unions—*

Co-operative Dairies (of this 39 million krones is accounted for by the Butter Export Associations)	250·0	
Co-operative Bacon Factories (of this Danish Bacon Company accounted for 28·6 million krs.)...	110·0	
Carried over ...	360·0	45·4

		Million Krs.
Brought over ...	360·0	45·4
Animal Export Associations ...	4·0	
Danish Egg Export Association ...	5·0	
Co-operative Bacon Factories, egg export	3·1	
		372.1
3. *General Supply Associations* ...		75·0
4. *Co-operative Real Credit Associations*—		
Credit Associations 4½ % rente of 1,645 million krones ...	74·0	
Hypotek Associations 6 % rente of 100 million krones ...	6·0	80·0
5. *Co-operative Insurance Associations*—		
Premia Receipts—		
Mutual Fire Insurance ...	10·1	
„ Live Stock Insurance ...	3·8	
„ Life Assurance ...	5·3	
„ Accident Insurance ...	2·5	21·7
Total ...		549·2*

The co-operative movement has been a great success in Denmark. It has done a vast amount of good for the whole country. The flourishing condition of farmers in Denmark is almost entirely due to this organisation. It has enabled small-holders and small farmers to sell their produce with the same ease and with equal profits as the produce of large farms. Small-holders are now the chief exporters of butter, while some of the large farmers sell their butter in Denmark locally; whereas formerly the small-holders had no share in the export trade. As an instance of improvement in the agricultural trade, may be noted the rise in the price of butter, which in 1863 was 16-18 skilling=about 35 óre per Danish lb., whereas in 1882 it rose to 142 óre (page 25 of "Andelsbevaegelsen i Danmark, 1910").

The general progress† in the co-operative movement is given as under:—

* "Andels udvalgets Almanak. Og Aarbog," 1914.

†Beretning om Andels foreningernes Faellesmode of the congress of Co-operative Societies held at "Grundtvigs Hus," Kóbenhaven, on 6th and 7th April, 1914.

Year.	No. of Unions.	Total turnover in millions of krones.
1866	2	0·02
1870	35	0·50
1885	250	10·00
1890	1,150	90·00
1895	1,700	130·00
1900	2,650	225·00
1901	2,900	250·00
1902	2,950	270·00
1903	3,050	295·00
1904	3,150	310·00
1905	3,350	345·00
1906	3,400	360·00
1907	3,500	390·00
1908	3,700	425·00
1909	3,850	440·00
1910	3,900	470·00
1911	3,950	490·00
1912	3,950	535·00

So perfect is the orgnisation of Co-operative Unions and Societies in Denmark that the operations of all forms may be regarded as comprised in one vast federation directed by influential central committees, which discharge their varied functions with great intelligence and perfect harmony and mutual confidence.

The whole business between producers and consumers is carried on on co-operative lines from start to finish. They get all the advantages, no middleman being employed to share in the profits. Managers and other employés of their factories and shops who work for wages, also share to a small extent in the profits.

After paying a fair value of farm produce to members and defraying all working expenses, whatever profits made in the year are divided among the members, the heads of the managing staff and the customers, thereby carrying the principles of co-operation to the fullest and truest sense of expression. All concerned share in the profits and naturally co-operate in the success of the business. The bases of dividing the surplus profits among the various parties are explained in the description of each class of industry in the following chapters.

CHAPTER IV.

Summary of Milk Industry.

Section 1.—General Remarks.

Among the agricultural produce and export trade of Denmark, dairy produce ranks first in value and general importance. The total sales of agricultural produce during the year 1912 amounted to 372,100,000 krones, of which 250 million krones (67 per cent.) was dairy produce, while the total value of butter, cream and milk exported from Denmark during the same year amounted to £11,888,000 or 41 per cent. of the total exports (£29,000,000) of agricultural produce.

This export trade, together with the local trade in Denmark itself, is carried on almost entirely on co-operative principles.

Among the milch cattle they have large herds of cows and a few goats and sheep ; but the milk of cows alone is used in the Co-operative Dairies for the making of butter. There are no buffaloes in Denmark.

Greatest possible care is taken in breeding, selecting, feeding and keeping generally of milch cattle in Denmark. It is the milk industry which has made agriculture so profitable in the country, and the prosperous condition of its farmers is chiefly due to cows.

Up to the middle of the 19th century, farmers of Denmark gave most of their attention to the production of wheat and the cattle were utterly neglected. Their lands had become impoverished owing to excessive wheat-growing, and consequently their crops were deteriorating except where large quantities of manures were used (pages 93 and 94 of the Report of the Irish Deputation of 1903).

Attention to improving the breeds of cattle in Denmark began with the introduction of Co-operative Dairies and the invention of the Centrifugal Cream Separator. These dairies gave large profits to farmers who joined them, and

this gave a general impetus to the milk industry. Farmers who had no cows sold their crops to buy cows, and the aim of each farmer was, before anything, to develop to the greatest possible extent the milk production of his cows.

The deterioration of wheat crops mentioned above also gave material assistance to those who were at that time urging the general improvement in the breed of cattle. Moreover, they saw that the price of butter produced by Co-operative Dairies increased steadily, and the most intelligent among them not only saw the advantage of dairy reform but also of taking part in the breed improvement schemes.

In connection with the milk industry, they have now the following Co-operative Unions, Associations and Government Departments in Denmark :—

1. Cattle-breeding operations—	
(*a*) Local Unions ...	Kvaegavls-foreninger.
(*b*) District Unions ...	Faellesledelsen af Kvaegavls i Amts.
(*c*) Provincial Unions	Forbundet af Kvaegavls-foreninger.
2. Milk-testing control—	
(*a*) Local Unions ...	Kontrol-foreninger.
(*b*) District Unions ...	Faellesledelsen af Kontrol-foreninger i Amts.
(*c*) Provincial Unions	De Sammensluttede Kontrol-foreninger.
3. Dairy organisations—	
(*a*) Co-operative Dairies.	Andels Mejerier.
(*b*) District Dairy Unions.	Amts Mejeri-foreninger.
(*c*) Provincial Dairy Unions.	De Samvirkende Mejeri-foreninger.
(*d*) Federation of Danish Dairies.	De Danske Mejeri-foreningers Faelles-organisation.
(*e*) Dairy Managers' Union.	Danske Mejerist-forening.
(*f*) Committee for cheese experiments and shows.	Udvalgets for de Samvirkende Forsógostninger.
(*g*) Dairy Statistical Committee.	Mejeristatistik Udvalget.
(*h*) Butter Pricing Committee.	Mejeristatistik Udvalgets Smór Noteringsudvalg.
(*i*) Danish section of the International Dairy Alliance.	International Maelkeri forbunds danske afdeling.

	(*j*) The Royal Butter-testing Laboratory.	Det Kgl. Veterinaer og Landbohojskoles Laboratorium.
	(*k*) Control over butter and margarine.	Smór og Margarine Kontrollen.
4.	Butter Export Unions—	
	(*a*) Danske Mejeriers Andels Smóreksport-forening.	"Danish Dairies," established 1904. 140 dairies combined.
	(*b*) Sydfynske Landmands Smóreksport-forening.	The South Funen Farmers' Butter Export Union, 1895. 28 dairies as members.
	(*c*) Dansk Andels Smórpakkeri.	The Danish Co-operative Butter Factory, 1895. Association of 42 dairies.
	(*d*) Norrejysk Smóreksport-forening.	North Jutland Butter Export Association, 1904. 15 dairies as members.
	(*e*) Midjysk Smóreksport-forening.	Middle Jutland Butter Export Association, 1898. 30 dairies as members.
	(*f*) Aalborg Amts Andels Smórsalgs-forening.	Aalborg District Co-operative Butter Sale Association, 1901. 27 dairies.
5.	De danske Mejeriers Faellesindkob og Maskin fabrik.	The Danish Dairies Purchase Union and Machine Factory.
6.	Mejeriernes og Landbrugets Ulykkes forsikring.	Dairies and Agricultural Accidents Insurance.

The main object of the agriculturists in Denmark is to produce large quantities of milk and milk products. Most of the agricultural produce for purposes of export is converted into milk, cream, butter and cheese. Even bacon, which stands second on the list of Danish exports, is fattened with skim milk or whey. There is a large demand for such articles in the countries about Denmark, especially in England, Germany and Austria.

Cows are practically kept indoors for eight months of the year. For 16 weeks in the summer they are kept in the open, *i.e.*, in May in the fields, in July in stalls fed on grain, in August (after the harvest) again in the open till the end of September. In the open they are tethered in a small pan of grazing land always set apart on the farm for this purpose. By keeping the animals tethered they very largely economise standing grass in the rest of the field, which would be spoiled if the cows were let loose to

graze all over the field. The Danish cows are well accustomed to this way of grazing, which is highly beneficial.

Danish cows generally calve in the spring—September or October—heifers calving before they are two years old. Young calves are as a rule separated from the mother after 8 or 14 days from their birth. Heifers to be retained as milch cattle are allowed to suck their mothers' milk for the first 20 days only. After that they are gradually fed with skim-milk supplemented with roots and hay.

The feed of cows consists of hay, straw, mixed oats and barley, or barley alone, oil-cake, beans and roots, such as kaal, beet, carrot, etc.

On larger farms, the cows stand in rows of stalls with passages between, along which the fodder is conveyed by trollies run over a line of rails. Open troughs are provided for artificial feed, and a constant supply of fresh water is always available. Behind the cows is a very wide channel, and between each pair of these channels is a paved walk about 13 inches wide. The exact dimensions of byres for these stalls are 1·72 meters in length and 1·00 meter in width. The width of the water channel is 0·79 meter, the same being the width of the walk between the two channels running along the cows' feet. The distance between the cows' heads is 1·40 meters.

Pucca cement pipes are in some places laid from the stalls to allow the urine of the animals to run down into a covered masonry tank, built partly under and partly above the ground level in the courtyard of the farm. Along this tank are provided one or two oblong ditches for the storage of dung. Both the urine and dung form a very valuable manure for fertilizing the land. The tank has an opening on the top for the liquid to be drawn out when required for use.

The farm houses in Denmark are built of pucca masonry, and many of them have large spacious double-storied buildings, built on a square on all four sides, leaving a large open court-yard in the centre. On one side are the residential quarters and on the other three sides are (1) godowns for the storage of implements, machinery, fodder, etc., (2) stalls and stables for the cattle and horses, and (3) accommodation for other livestock, poultry, etc. As a rule, the Danish farmer has very comfortable house accommodation.

Of the farms visited, was one at Hellerödsholm, the property of Herre Antone Poulsen, who very kindly gave the following particulars of his farm :—

Total area	650 acres.
Of which pasture land	100 „
Horses for plough and carting...	50
Cows kept	170
Other cattle kept	80
Poultry „	200

Labourers—Men 27 (married), of whom 16 families lived on the farm, the men getting 2 krones a day with free quarters and a small garden for their vegetables. Those who did not live on the farm received 50 krones extra per annum as house allowance.

Women 7 or 8, at 275 krones each per annum.

Boys 7 at 200 to 300 krones each per year, with food and free quarters.

His rotation of crops was one of 8 years as noted below :—

1st year, land ploughed 4 times and left unsown "Brak."
2nd „ rye.
3rd „ barley.
4th „ beetroot and turnips or potatoes.
5th „ oats and clover grass.
6th and 7th years, clover.
8th year, oats.

The milk from his cows, about 2,000 lbs. daily, was sold at $5\frac{1}{4}$ öre per lb. to the dairy worked by another man on the same farm. The chief produce of the farm was milk, which, Mr. Poulsen said, defrayed all the expenses and gave him profits. His other income was from the sale of eggs of the poultry, cattle, potatoes 300-400 Td. annually at 4 krones per Td., wool of 30 sheep and some lambs.

For feeding his animals he used mostly his own produce. He sold a portion of his barley only to buy oil-cake for his cows. He used about 300 Td. oats and maize for feeding his horses, and gave the following food, besides grass or hay to each of his cows daily : Barley 3 lbs.; oil-cake 4 lbs.; roots 75 lbs.



Red Danish Cow.



Red Danish Bull.

To Face Page 53.

CHAPTER V.

Breeding of Live Stock.

Section 1.—Breeds of Cattle.

There are two distinct breeds of cows in Denmark, *viz.*,

(1) The red Danish cow.
(2) The black and white spotted Jysk cow.

The race of the red Danish cow is dark red to red, without any difference in the colour throughout the breed. The only places where touches of white are found are on the belly and the udder. It is found generally in the provinces of Seeland, Funen, Lolland-Falster and Bornholm ; while the second breed is confined to Jutland only. Various attempts were made to introduce foreign breeds from Switzerland and other countries, but the experiments made proved that best results could be obtained from the native breeds only, and the Danes have therefore given up all attempts towards importing foreign stock or having a mixed breed, the climatic conditions favouring the native land-races of cattle. By systematic arrangements, which are described in the following pages under the heads "Cattle-breeding Unions" and "Milk-testing Control Unions," they have, however, made considerable improvements in their native stock and in their milk yield.

About the middle of the nineteenth century efforts were begun to improve the breeds of cattle, which was then fast degenerating. At the outset few of the farmers understood the importance of good breeds, but with the education of the people and the introduction of Co-operative Dairies and Centrifugal Cream Separators, the desire for raising the yield of milk from cows rapidly gained ground. At the present time Danish farmers have a thoroughly organised system of breeding the best qualities of animals, and spreading them among farmers, and of weeding out any poor milkers.

The improvement in the red Danish milch cow was brought about by importing into Seeland and Funen the developed angel breed of the same race from the adjoining Province of Schleswig, which, prior to 1867, formed part of Denmark itself. Many of the breeders raised by degrees herds of the pure race of Schleswig, and from these herds a large number of bulls and cows were distributed in the neighbourhood. The old Danish race crossed remarkably well with the Schleswig, the calves generally retaining the Schleswig points. At the end of several generations most of the traces of the mixture disappeared; the two species were so closely allied in their origin and general character that they really were creating and improving but one breed.*

Among the red cows there is a race known as Jersey, whose milk is richer in butter fat, its percentage being 5·25 against 3·50 of the Danish red or the Jysk breed. There is a separate Union for this race (Foreninger Jersey) with a membership of 250, subscribing 25 öre per thorough Jersey cow.

The Jutland cow had not been so neglected as the Danish red was before the improvement in the breed took place. Its milking qualities, however, were improved at the same time as the improvement in the red race was brought about. The means adopted for its improvement also were the same, *viz.*, the formation of breeding centres and milk-testing control arrangements.

Section 2.—Cattle-breeding Unions.

Kvaegavlsforeninger (*Cow-breeding Unions*).—Local Unions for the breeding of cattle are established in various parts of Denmark. They keep breeding bulls purchased from the breeding centres, described at page 55, to serve cows of members belonging to the Union, and take all possible measures for the improvement of the breed generally. The expenses of the Local Unions are met jointly by the members in proportion to the number of cows served by the bull, a portion of the expenses being met by grants from the Government.

* Report of the Irish Deputation 1903, page 95.

Besides the Local Cow-breeding Unions, there are Local Control Unions for the purpose of testing the yield of milk and butter from cows and regulating their food, as described in Chapter VI.

District and Provincial Unions.—In the two Provinces of Jutland and Funen, the Local Unions for cow-breeding and for milk-testing control have federated together in a single Union established in each district, and these District Unions are affiliated to a Provincial Union.

In Seeland there are District Unions for cow-breeding only, and the Provincial Unions in Seeland, Lolland-Falster and Bornholm are separate for the cow-breeding operations and for the milk-testing control work.

Expenses.—The expenses of the District and Provincial Unions are met partly by yearly grants from the Government and partly from the Local Cow-breeding Unions. The contributions from both sources vary in each district according to the total expenses incurred by the District Unions. The total contribution from the Government for the cattle-breeding operations for the year 1912-13 was 91,390 krones, each district receiving a share, while the contributions from the Local Unions were at different rates. Some of them paid at 10 per cent. of the State contribution, others at 5 to 25 krones per Local Union, or 5 to 10 öre (8 to 16 pies) per cow per annum. The total expenses of the District Unions varied from 250 to 1,500 krones for the year.

Breeding Centres.—To enable farmers to buy animals of the best milking qualities, breeding centres or herds of selected animals have been formed, from where farmers or Unions requiring cows or bulls can buy their requirements. By the use of good bulls, not only is the yield of milk increased in their progeny but the percentage of butter fat in such milk is also appreciably raised. Breeding bulls could be kept to an age of 10 or more years by giving them moderate exercise in drawing vehicles or water from wells*. For further information see clause (*f*) of the concluding portion of Chapter VI.

General Organisation.—The following table shows the total number of Cattle-breeding Local Unions and District and Provincial Associations, together with the number of

* See pages 104-106 of H. Rider Haggard's "Rural Denmark and its Lessons."

bulls they keep and the number of their members on 31st March 1913 :—

Province.	Provincial Associations.	District Associations.	Local Unions.	Number of bulls.	Number of members.
Jutland ...	1	17	557	701	15,485
Seeland ...	1	7	220	241	4,332
Funen ...	1	...	113	125	2,677
Langeland ...	...	1	9	12	320
Lolland-Falster ...	1	...	35	44	600
Total ...	4	25	934	1,123	23,414

Provincial Unions.—The following are the names, headquarters and the year of establishment of the Provincial Cow-breeding Unions in Denmark :—

(1) Faellesledelserne af kvaegavls og kontrol foreninger i Jylland, Aarhus, 1887.

(2) Faellesledelserne af kvaegavls og kontrol foreninger i Fyns-stift, Odense, 1893.

(3) Forbundet af Sjaellandske M.fl. kvaegavls foreninger, Copenhagen, 1891.

(4) Forbundet for Lolland-Faslter kvaegavls foreninger.

Section 3.—Sheep and Goat Breeding.

For the breeding of sheep there were 104 Local Unions (Faareavls-foreninger), one District Union at Viborg and two Provincial Unions (Faellesledelsen af Faareavls-foreninger) *viz.*, one for Jutland and one for Funen. There were 12 Local Unions (Gedeavls-foreninger) for the breeding of goats and 8 breeding centres for goats of the native (land) race and 5 centres for the goats of Saanenrace.

Section 4.—Horse-Breeding Unions.

In agricultural work in Denmark, the horse plays the same part as the bullock does in India. Lifting of water from wells for agriculture is, however, not required in Denmark; the horse is therefore used for ploughing of land, drawing of carts, carriages, etc.

There are two celebrated breeds of horses in Denmark, *viz* :—

(1) The Jutland breed—a heavy, strong animal for heavy work.

(2) The Frederiksborg breed—a light but strong and spirited animal.

For the breeding of horses there were 267 Local Unions (Hesteavls-foreninger) in 1913, generally Parish Unions with Federal Unions (Amts Hesteavls-foreninger) in the several districts, and a Samivirkende in each of the Provinces, together with breeding centres (Avls Centre for Heste), all on similar arrangements and principles as those described fully for the breeding of cows. The Government allows subsidies to these Unions towards their expenses and prizes for the best animals at Horse Shows. The allotment for the year 1913-14 was 156,590 krones, while the members of the Local Unions contributed annually from 1 to 10 krones each, the subscription varying according to the number of members in a Union. The local Unions contributed 10 to 35 krones each towards their Provincial Federation.

CHAPTER VI.

Milk-testing Control Unions.

In milk industry, the most important and foremost work is to obtain a maximum of milk and butter yield from the cows with a minimum of cost. This has been attained in Denmark by systematic arrangements in cattle-breeding, which have been improved by shows and competitions held among the best herds in the country and by the work done under what are known as the "Kontrol" Unions. An account of these Control Unions is given in the following paragraphs:—

Object of Control.—The object of the Control Unions is to keep an account of the yield of milk from each individual cow and of the butter-fat contained therein, for guidance in feeding the cows, in weeding out those cows which do not pay, and in selecting the cows from which best stock could be bred.

The object is attained by the farmers within a limited circle (kredse) or district (amt) jointly appointing a young man as the "Control Assistant."

Expenses of Control Stations.—The expenses of a Control Station vary according to the qualifications of the assistant employed. A young man who has just started in life can be had for a lower rate of pay than an old experienced assistant. The expenses are divided among the members in proportion to the number of cows dealt with, or according to the number of members as may be mutually agreed upon in each case.

In the Province of Funen, where 123 assistants were employed at salaries ranging from 525 to 544 krones per annum during the year 1912-13, the cost per cow to members worked out from 2·10 to 2·19 krones per annum; while Mr. Laursen of the Haslev Control Station charged 1·50 krones per cow where tests were taken fortnightly and 75 öre to 1 krone where tests were taken only once a month.

For the Province of Jutland, the following statement for the year 1912-13, gives an interesting account of the

25 Control Unions which in the summer of 1913 applied for State contribution :—

Names of Unions.	Establishment year.	Members.	Cows.	Days between Contol takings.	Assistant's Pay.	Chemicals.	Account Books.	Repairs to Apparatus.	Other Expenses.	Total.	Government Aid.	Members' Expense per Cow.
					Kr.	Kr.	Kr.	Kr.	Kr.	Kr.	Kr.	Kr.
1. Alminde-Lilballe-Viuf	1910	20	355	20	525	51	43	21	22	662	200	1·30
2. Andst	1898	18	388	21	500	60	52	10	35	657	200	1·18
3. Askov	1897	13	265	14	533	66	50	7	42	698	200	1·88
4. Aagaard	1896	18	450	18	480	80	35	12	100	707	200	1·13
5. Brorup	1896	22	308	15	535	60	36	10	80	721	200	1·69
6. Egtved	1910	25	333	21	465	45	40	30	190	717	200	1·71
7. Fovling	1900	26	270	30	400	75	45	80	75	675	200	1·76
8. Gjesten	1896	14	360	20	500	63	42	5	73	683	200	1·34
9. Haastrup	1899	17	308	17	450	66	25	50	29	620	200	1·36
10. Holsted	1909	29	325	22	450	90	51	5	25	621	200	1·30
11. Hojrup-Ferup ...	1896	13	362	14	575	50	26	55	30	736	200	1·48
12. Jordrup-Knudsbol ...	1899	23	425	20	550	49	33	6	116	754	200	1·30
13. Ladelund og Omegn.	1902	14	240	14	450	35	18	41	20	564	200	1·52
14. Laeborg	1904	22	389	20	495	32	34	20	127	708	200	1·31
15. Seest-Hjarup ...	1896	14	382	18	475	60	37	9	32	613	200	1·08
16. Skanderup	1909	18	400	21	600	60	33	24	50	767	200	1·42
17. Skibelund	1908	16	210	14	475	40	30	15	60	620	200	2·00
18. Smidstrup-Velling ...	1897	21	377	20	525	30	31	5	61	652	200	1·20
19. Sonder Bjaert ...	1907	17	380	20	460	52	35	45	48	640	200	1·16
20. Sonder stenderup ...	1898	11	391	20	550	95	27	30	30	732	200	1·36
21. Vamdrup	1899	17	391	21	475	40	30	12	25	582	200	0·98
22. Veerst-Ravnholt ...	1902	15	310	15	486	34	30	36	50	636	200	1·40
23. Vejen Omegns ...	1895	10	210	14	500	46	37	63	38	684	200	2·30
24. Vonsild-Dalby ...	1898	15	415	21	560	56	21	3	20	660	200	1·11
25. Odis-Taps	1909	13	350	16	425	32	29	10	71	567	200	1·05
Total		441	8594	...	12,439	1367	870	604	1449	16,729	...	...
Average 1913		18	344	18	498	54	35	24	58	669	200	1·36
,, 1912		18	347	17	491	55	38	17	55	656	215	1·27

Under Lov No. 124 of 8th June 1912 of the Danish Parliament, a grant of 200 krones per annum was allowed to a Union consisting of not less than 10 members owning not less than 200 cows, subject to a maximum of 120,000 krones per annum for the whole country. The idea is to help small-holders. Prior to the passing of the above Act, the allowance was at the rate of 200 krones for each assistant employed by a Union where the number of cows exceeded 200. Since that rule had been altered, larger Unions were splitting up into two or more separate Unions to get the maximum grant obtainable from the State.

Progress of Unions.—In Denmark the control work was originally done in connection with Cattle-breeding Associations which were regularly formed in 1883. It was so carried on till the year 1894, when a set of rules for Control Unions was formally drawn up, and the first typical Control Union was established at Vejen in May 1895, see clauses (*j*) and (*k*) at page 77. At the end of the year 1912-13 there were 592 Unions with 12,680 members and 196,200 cows under "Control" in Denmark; of the 592 Unions, 553 received grants from the State at 200 krones, amounting in all to 110,600 krones in the year. The number of these Unions was increasing; on the 10th of August 1914 Stats Konsulent A. P. Hensen, gave the number of Unions receiving the State grant as under :—

In Jutland	...	224
In other Provinces		348
Total	...	572

The State contribution for these came to 114,400 krones, which was still within the maximum of 120,000 krones laid down in the Act of 1912.

Control Work.—The Assistant in charge of a Control Station or his assistant goes to each farm periodically on certain days. The cows are milked in his presence and he records the quantity of yield from each cow every time (usually three times) each cow is milked during the 24 hours, and he takes samples from each yield and mixes up the samples of each cow. These samples he takes to his office and ascertains the percentage of butter-fat through the

Gerber apparatus, recording the results in a register specially kept for the purpose, and weighs the food given daily to each cow, and keeps an account of these details in forms 1 to 4 printed on pages 64 to 66, with sample entries.

He has further to keep a list showing when they have calved, the sex of the calves, and what has become of them.

State Inspector's Work.—The Royal Danish Society, a Government Institution, supplies an Inspector for every Co-operative Society having *1,000 cows.* Part of his salary is paid by the Society and the rest by the Government. He visits each farm every *18 days.* At the head of every byre there is a slate on which is set forth in chalk the exact value of each cow. From it one learns at a glance—

(1) The sire of the cow and her number.

(2) The cow's number in the herd book.

(3) The age.

(4) The quantity and quality of the milk by the sire's dam, its percentage of butter-fat and the quantity of butter.

(5) The cow's yield of milk for the last season ; its percentage of butter-fat and the amount of butter.

(6) The time this cow calved last and when she is expected to calve again.

(7) The highest yield of milk the cow has given since she calved, the date of the highest yield, and the yield now.

(8) The class to which the cow belongs according to her yield.

She is fed in accordance with her milking quality.

District and Provincial Unions.—The Local Unions work under what may be called the District or Circle Unions (Amts Kontrol Foreninger). The District Unions are controlled by Provincial Unions, of which there are five in Denmark, *viz :*—

(1) De Sammensluttede Sjaellandske Kontrol Foreninger, Kóbenhavn.

(2) Faellesledelserne af Kvaeg-avls og Kontrol Foreninger i Jylland, Aarhus.

(3) Faellesledelserne af Kvaeg-avls og Kontrol Foreninger i Fyns stift, Odense.

(4) De Sammensluttede Bornholmske Kontrol Foreninger, Rönne.

(5) Faellesledelse af Kontrol foreninger paa Lolland-Falster, Nykóbing F.

The Provincial Unions worked independently, as the conditions (especially the breeds of cows) were different in the several Provinces.

In the Seeland Provincial Control Association, there were on 31st March 1913, 159 Kontrol Foreninger with 3,349 members and 62,023 cows as detailed below :—

	Number of Local Unions	Members.	Cows.
Kóhenhavn	14	320	5,748
Frederiksborg	21	435	7,628
Holbaek	35	723	13,054
Soró	47	884	19,105
Praesto	42	987	16,488
Total ...	159	3,349	62,023

Expenses of a Provincial Union.—Towards the expenses of the Provincial Association, the Local Unions contribute as under :—

Per member per annum ... 75 öre.
Per cow „ ... 5 „

The following is a statement of accounts of this Provincial Association for the year 1912-13 :—

Receipts.	*Krones.*
Cash balance on 1st April 1912	1,642·56
State contribution for Counsellor... ...	1,470·00
Coutribution by Control Unions	7,129·70
State contribution for analysis of roots and fodder stuffs	230·53
Interest	124·15
Total ...	10,596·94

Expenses.	*Krones.*
Salary of Counsellor	3,000
Travelling expenses	81
Expenses of meetings	198
Honorarium for papers read	40
Printing	2,971
Postage	130
Office expenses	83
Honorarium to Analyst of roots and fodder	264
Honorarium to Secretary	300
Miscellaneous expenses	61
Total ...	7,129
Balance on 31st March 1913 ...	3,467·94

Expenses of a District Union.—The expenses of a district or circle Control Union are met by a contribution of 10 to 15 krones per annum from each local Control Union.

Improvements effected by Control Unions.—From the control records one knows exactly how much each cow consumes, how much milk and butter she gives, and whether she is profitable or not. By these records and regular study of these results, the yield of the cows has been steadily increased. In 1864 the yield of Danish cows in butter was about 80 lbs. per cow per annum; in 1886 it went up to 116 lbs. and in 1908 to 220 lbs. The results speak for themselves as regards the usefulness of the Control work. These are averages for the whole of Denmark, but the average for the 38,000 Danish cows in the Control Unions of Funen was about 285 lbs. in 1912, and the annual butter-yield of some of the *best* cows was as much as 230 to 311 kilogrammes = 460 to 622 lbs. per cow.

Form 1 (Referred to on page 61).

Checkings Found at Residence on 22nd January 1911, commencing

No. of Cow.	Class No.	Kg. Milk.				Percentage of Fat.	Milking days.	Calculated Results.			
		Midday.	Afternoon.	Morning.	Total.			Kg. Milk.	*Butter.* Kg.	*Butter.* Gr.	Kg. Milk with 1 pct. Fat.
1	1	6·4	6·0	6·9	19·3	3·40	15	290	10	96	986
3	3	2·0	1·8	2·3	6·1	4·00	15	92	4	12	368
Total.		8·4	7·8	9·2	25·4	3·54	15	382	15	8	1,354

Average fat % = 3·54 Kg. Milk per cow daily = 12·73
Kg. Milk for 1 Kg. Butter = 24·17 F. E. per cow daily = 8·97

Form 2.—Record of a whole Herd of Cows, October 1st 1910 to September 30th 1911.

	No.	Pounds Milk.	Percentage Fat.	Pounds Butter.	Feed Units.	100 Feed Units Gave	
						Pounds Milk.	Pounds Butter.
Whole herd.							
1st Class Aged cows	1	11,311	4·11	520	6,108	185	8·52
2nd Class Cows after 2nd calf	...	...	...	...	...	...	...
3rd Class Cows after 1st calf	1	4,380	4·00	180	2,500	175	7·20

from 16th January to 30th January 1911 = 15 days.

Consumption of Feed Units, F.E.								Daily Food.						
Oil-cake.	Other Concentrates.	Kg. Beet.	Grass.	Green Fodder.	Hay.	Straw.	Total.	Kg. Cake.	Kg. Other Concentates.	Kg. Beet.	F. E. Grass or green food.	Kg. Hay.	Kg. Straw.	Remarks.
30	15	71	...	...	18	24	158	2	1	45	...	3	8	
15	8	55	...	...	6	27	111	1	0·5	35	...	1	9	
45	23	126	...	...	24	51	269	3	1·5	80	...	4	17	

100 F. E. gave 142 Kg. milk.

100 F. E. gave 5·87 Kg. butter.

Note.—1. F. E. = 1 Kg. of oilcake or other concentrates, or
$9\frac{1}{2}$ „ beet, or
$2\frac{1}{2}$ „ hay, or
5 „ straw.

Form 3.—Record of Single Cows in order of Production of Butter, 1910-11.

Serial No.	Individual No.	Days.	Age 1st October 1910.	Pounds Milk.	Percentage Fat.	Pounds Butter.	Feed Units.	100 Feed Units Gave		Father.	Grandfather.
								Pounds Milk.	Pounds Butter.		
1	400	365	5·11	11311	4·11	520	6,108	185	8·52	Dan	Torban.

Form 4.—Average production of Whole Herds.

1ST CLASS—AGED COWS.
2ND CLASS ,, ,,
3RD CLASS ,, ,,

Serial No.	Name of Farmer.	No. of Cows.	Milk and Butter Production.				Feed Units.							Per day.		100 F. U. gave		Gross Value of Milk.	Value of Food.	Gain or Loss.
			Milk Pounds.	Butter Pounds.	Percentage Fat.	Pounds of Milk to 1 Pound of Butter.	Cakes.	Other Concentrates.	Beet.	Grass.	Hay.	Straw.	Total.	Milk.	F. U.	Milk.	Butter.			

The following table gives average results obtained from cows in Denmark during the year 1912-13 :—

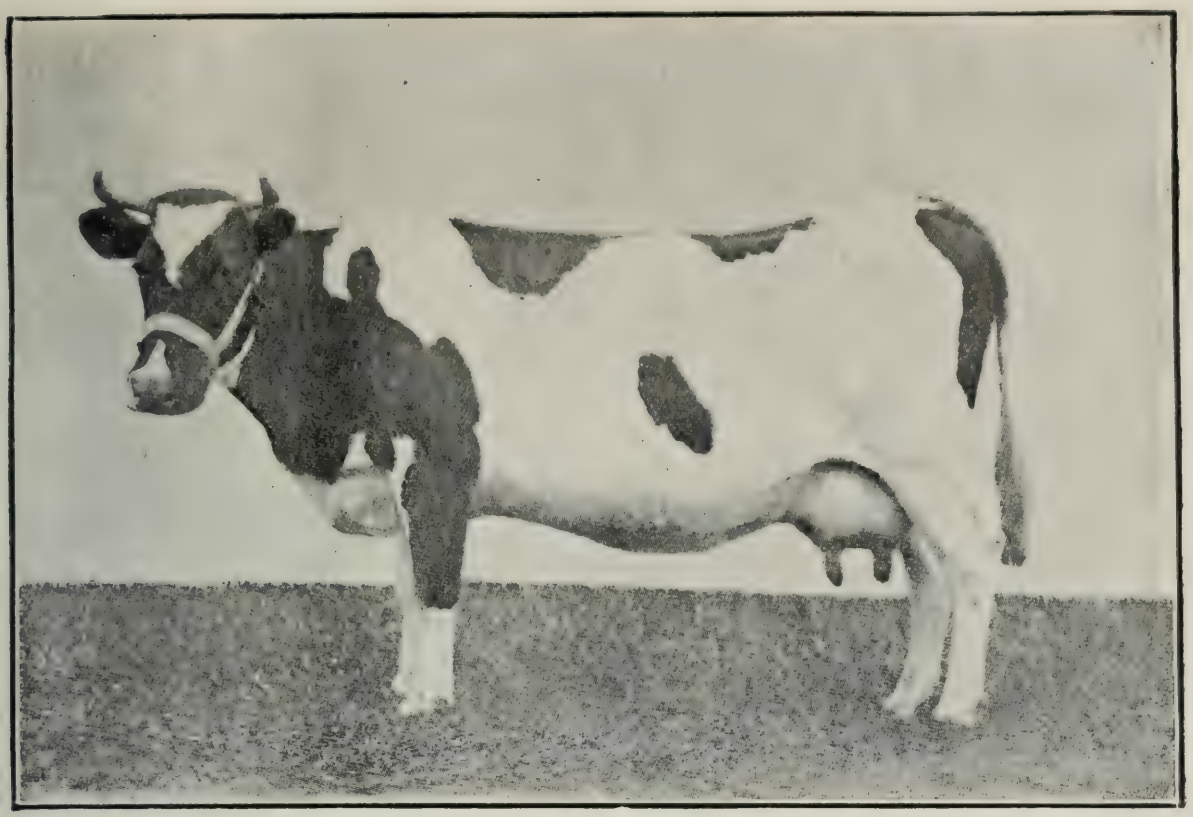
Province and Description of Cows.	No. of Unions.	No. of Members.	No. of Cows.	Consumption of Feed Units per Cow.	Yearly Yield per Cow.			Results per 100 Feed Units.		Kg. of Milk used for 1 Kg. of Butter.
					Milk Kg.	Percentage of Butter-fat.	Butter Kg.	Milk Kg.	Butter Kg.	
1. *Seeland.*										
All Danish Red Cows ...	153	3047	56,922	2505	3283	3·54	129·5	31	5·17	25.3
Normal do.	...	...	26,757	2547	3590	3·53	141·3	141	5·55	25·4
Jersey Cows ...	..	...	499	1860	2233	5·08	127·8	120	6·87	17·5
2. *Funen.*										
All Danish Red Cows ...	128	2832	38,620	2840	3560	3·56	141	125	4·96	25·2
Normal do.	...	...	20,174	2900	3883	3·55	153	134	5·29	25·3
All Jersey Cows	...	36	441·6	2307	2513	5·25	150	110	6·50	16·9
Normal do.	...	36	217	2348	2767	5·20	163	118	6·94	17·0
3. *Jutland.*										
Black and White Spotted Cows.	204	1355	72,135	2237	2980	3·49	115	133	5·18	26·0
Jersey Cows ...	...	65	1,560	1950	2313	5·12	133·8	118	6·86	17·3
4. Vejen and Neighbourhood ...	...	10	170·3	2489	3540	3·59	141·5	142	5·69	25·0

Note.—In Jutland the average number of cows belonging to a member of the Control Unions was 16·5, the average number of members per Union was 21·7 and that of cows per Union was 361.

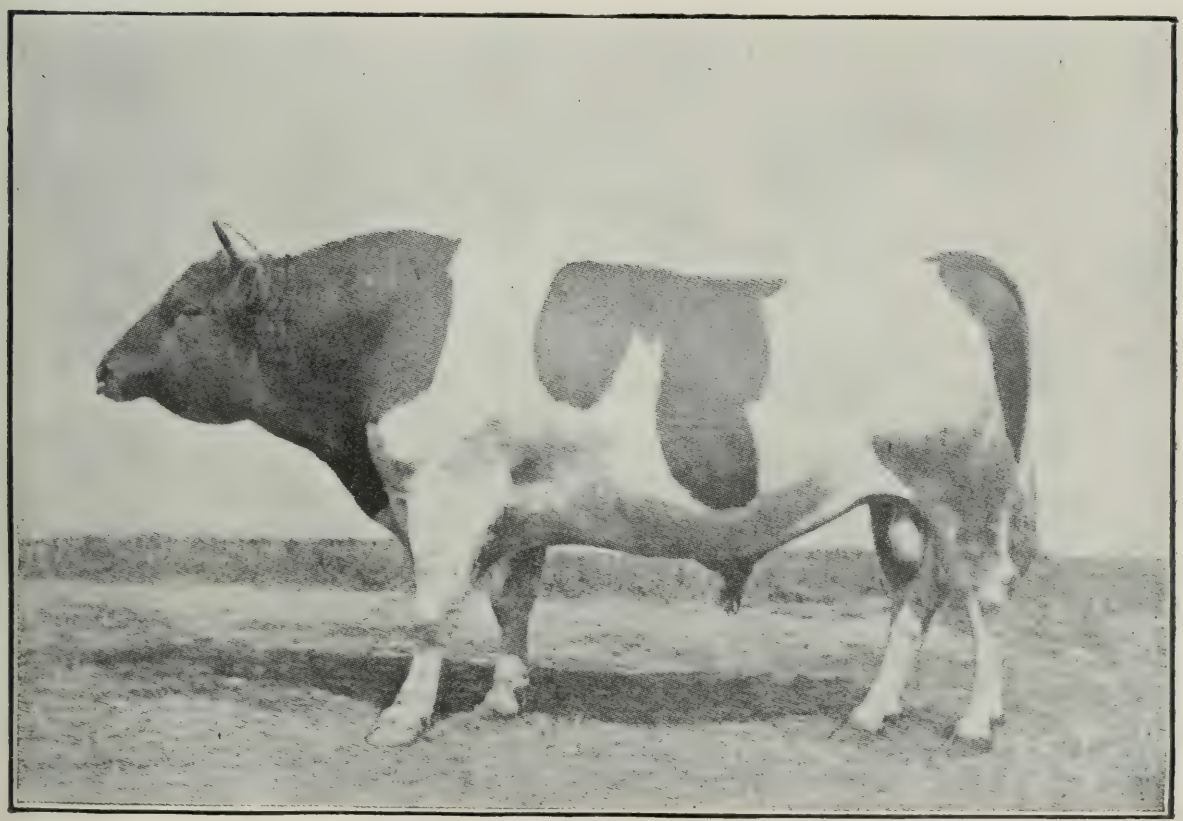
The preceding table shows the *average* of all sorts of cows in Denmark, but some of the herds have much higher yields both in milk and butter. The following entries are extracted from some of the Control returns embodied in the Annual Reports of Funen and Seeland for the year 1912-13 :—

Name of Member.	Name of Union.	No. of Cows.	Feed Units per Cow.	Yield per Cow for the year.			Kg. of Milk for 1 Kg. of Butter.	100 Feed Units gave	
				Kg. of Milk.	Percentage Fat.	Kg. of Butter.		Kg. of Milk.	Kg. of Butter.
Funen.									
P. Jorgenrsen Neder Holluf...	Frangde og Omegns	2	3,639	7,061	3·94	311	22·7	764	8·5
Chr. Knudsen, Langeskov ...	Rynkeby Sogns	2	3,141	5,886	4·34	287	20·5	814	9·1
Hj. Aagaard Sódinge	Sódinge	3	3,368	5,916	4·06	269	22·0	714	7·9
F. Hansen, Vaadager	Sóllinge Eskildstrup	1	3,493	6,611	3·58	263	25·1	577	7·5
N. Jensen ...	Ryslinge	2	3,303	5,361	4·28	258	20·8	695	7·8
J. P. Rasmussen Oksenda ...	Hesselager Sogns	1	3,512	6,786	3·36	253	26·8	649	7·2
Fr. Knudsen, Tarup	Haundrup og Omegns	1	3,331	5,712	3·90	249	22·9	669	7·4
H. Rasmussen, Sortebró ...	Brudager	3	3,350	5,611	3·88	243	23·1	650	7·2
Seeland.									
Hans Mortensen, Hellested ...	Hellested og Omegns	1	2,738	5,977	4·10	275	21·7	211	10·05
Fr. Jensen Sollyem, Rónnede	Aside og Ome gns	2	3,427	6,159	3·79	261	23·5	180	7·62
Kobn, P. Jensen Thorelunde, Taastrup ...	Kóbenhavns amt	1	3,074	5,747	3·71	238	24·1	187	7·74
P. Nielsen Tune.	Tune og Omegns	2	3,103	5,113	4·02	230	22·2	165	7·41

From the figures given above, it is clear that the efforts of the Control Unions have increased the milk and butter yield from the cows from 40 kilogrammes of butter per cow in 1864 to averages of 115 to 163 in 1912-13, while some of the selected groups gave as much as 230 to 311 kilogrammes.



Black and White-spotted Jutland Cow.



Black and White-spotted Jutland Bull.

To Face Page 68.

Year.	No. of Members.	ALL SORTS OF COWS.							NORMAL COWS.							Remarks.
		No. of Cows.	Yearly Yield per Cow.			Consumption of Feed Units per Cow Yearly.	100 Feed Units gave		No. of Cows.	Yearly Yield per Cow.			Feed Units consumed by each Cow Yearly.	100 Feed Units gave		
			Kg. of Milk	Pct. of Fat.	Kg. of Butter		Kg. of Milk.	Kg. of Butter		Kg. of Milk.	Pct. of Fat.	Kg. of Butter		Kg. of Milk.	Kg. of Butter	
Seeland.																
1912-13	3,047	56,922	3.283	3·54	129·5	2,505	131	5·17	26.757	3,590	3·53	141·3	2,547	141	5·55	
1911-12	2,915	54,720	3.152	3·50	123·0	2,316	136	5·31	25.928	3,460	3·49	134·5	2,363	146	5·69	F. E. Stands for feed units.
1910-11	2,751	53,938	3,230	3·56	128·0	2.362	137	5·42	28,298	3,507	3·54	138·0	2,399	146	5·75	1 F. E. = 1 kilogramme oil-cake or other concentrates, 8 to 12 Kg. of green grass, 12½ Kg. of beet, 5 Kg. wet brewers' grain, 2. to 3 Kg. hay, or 4 to 6 Kg. straw.
1909-10	2,734	54.396	3,062	3·51	119·5	2,362	130	5·06	27,935	3,381	3·48	131·0	2,398	141	5·46	
1908-9	2,646	52,764	3.089	3·50	120·5	2.311	134	5·22	27.121	3.416	3·47	132·0	2,359	145	5·60	
1907-8	2,568	49,247	3,126	3·48	121·0	2,381	131	5·08	26.380	3,441	3·45	132·0	2,428	142	5·44	
1906-7	2,367	43,484	3,189	3·48	123·5	2,360	135	5·23	23.118	3,468	3·51	135·5	2,407	144	5·63	
1905-6	2,355	42,732	3,076	3·45	118·0	2,285	135	5·16	22.323	3,387	3·43	129·0	2.380	145	5·54	
1904-5	2,116	39,144	3,106	3·42	118·0	2,199	141	5·37	21.052	3,397	3·41	129·0	2.235	152	5·77	
1903-4	1,623	30,896	3.130	3·42	119·0	2,290	137	5·20	17.011	3,434	3·40	130·0	2,333	147	5·57	
1902-3	1,194	23,999	3.174	3·42	120·5	2,248	141	5·36	13.106	3,457	3·41	131·0	2,291	151	5·72	
1901-2	909	19,884	3,085	3·42	117·5	2,246	137	5·23	10.498	3.356	3·40	127·0	2,272	148	5·59	
1900-1	784	17,086	2,880	3·40	108·5	2,101	137	5·17	8.162	3,177	3·40	120·0	2,228	144	5·43	
1899-00	451	10,273	2.840	3·36	106·0	1,985	143	5·34	4.880	3,133	3·25	116·5	2,008	156	5·80	

Year.	No. of Members.	JYSK COWS.							JERSEY COWS.							Remarks.
		No. of Cows.	Yearly Yield per Cow.			Consumption of Feed Units per Cow Yearly.	100 Feed Units gave		No. of Cows.	Yearly Yield per Cow.			Feed Units consumed by each Cow Yearly.	100 Feed Units gave		
			Kg. of Milk.	Pct. of Fat.	Kg. of Butter		Kg. of Milk.	Kg. of Butter		Kg. of Milk.	Pct. of Fat.	Kg. of Butter		Kg. of Milk.	Kg. of Butter	
Jutland.																
1912-13	4,355	72,135	2,980	3·49	115·0	2,237	133	5·18	1,560	2,313	5·12	133·8	1,950	118	6·86	
1911-12	,,	,,	...	...	...	2,191	136	5·32	1,758	2,283	5·21	134·5	1,951	117	6·90	
1910-11	,,	,,	...	...	...	2,229	134	5·32	1,288	2,328	5 31	137·5	1,970	118	6·98	
1909-10	,,	,,	...	...	...	2,188	131	5 09	1,023	2.223	5·07	127·5	1,900	122	6·71	
1908-09	,,	,,	...	...	...	2,206	134	5·17	...	...	...	...	...	...	...	
1907- 8	,,	,,	...	...	...	2,195	136	5·26	...	...	...	...	...	...	...	
1906- 7	,,	,,	...	...	...	2,176	136	5·19	...	...	...	...	...	...	...	
1905- 6	,,	,,	...	...	...	2,102	138	5·28	...	...	...	...	...	...	...	
1904- 5	,,	,,	...	...	...	2,105	142	5·41	...	...	...	...	...	...	...	
1903- 4	,,	,,	...	...	...	2,135	143	5·42	...	...	...	...	...	...	...	
Vejen District Control Union.																
1912-13	10	170·3	3,540	3·59	141·5	2,489	142	5·69	...	...	...	...	...	...	...	
1911-12	,,	227·3	3,225	3·50	125·	2,271	142	5·52	...	...	...	...	...	...	...	
1910-11	,,	215·3	3,311	3·47	128·	2,498	130	5·25	...	...	...	...	...	...	...	
1909-10	,,	208·3	2,987	3·52	117·	2,392	128	5·02	...	...	...	...	...	...	...	

Progress made in the Province of Funen in increasing the milk and butter-fat yields, from cows during the last 10 years :—

Year.	No. of Herds of Cows.	Yearly Milk Yield in Kilogrammes.								Percentage of Butter-fat.						
		Under 2,000	2,000 to 2,500	2,500 to 3,000	3,000 to 3,500	3,500 to 4,000	4,000 to 4,500	4,500 to 5,000	Over 5,000	Under 3·00	3·00 to 3·20	3·20 to 3·40	3·40 to 3·60	3·60 to 3·80	3·80 to 4·00	Over 4·00
1902-03... ...	1,172	2	21	135	386	438	158	27	5	2	67	482	486	124	8	3
	%	0·2	1·8	4·5	32·9	37·4	13·5	2·3	0·4	0·2	5·7	41·1	41·5	10·6	0·7	0·2
1903-04... ...	1,586	2	26	200	522	582	202	46	6	4	105	687	631	136	21	2
	%	0·1	1·7	12·6	32·9	36·7	12·7	2·9	0·4	0·3	6·6	43·3	39·8	8·6	1·3	0·1
1904-05... ...	2,122	...	39	310	762	713	242	47	9	2	91	715	965	307	38	4
	%	...	1·9	14·6	35·9	33·6	11·4	2·2	0·4	0·1	4·3	33·7	45·5	14·4	1·8	0·2
1905-06... ...	2,484	3	55	372	970	788	246	40	10	1	75	678	1,216	432	69	13
	%	0·1	2·2	15·0	39·1	31·7	9·9	1·6	0·4	...	3·02	27·3	49·0	17·4	2·8	0·5
1906-07... ...	2,653	1	46	308	964	931	328	64	11	2	59	755	1,282	474	71	10
	%	...	1·8	11·6	36·3	35·1	12·4	2·4	0·4	0·1	2·2	28·4	48·3	17·9	2·7	0·4
1907-08... ...	2,914	2	39	351	1,144	1,022	293	49	14	1	66	802	1,411	547	71	16
	%	0·1	1·3	12·0	39·2	35·1	10·1	1·7	0·5	...	2·3	27·5	48·4	18·8	2·4	0·6
1908-09... ...	2,952	2	39	343	1,047	1,090	357	61	13	...	41	613	1,422	724	126	26
	%	0·1	1·3	11·6	35·5	36·9	12·1	2·1	0·4	...	1·4	20·7	48·2	24·5	4·3	0·9
1909-10 ...	2,956	2	39	347	1,067	1,065	362	67	7	1	66	759	1,453	565	99	13
	%	0·1	1·3	11·7	36·1	36·0	12·3	2·3	0·2	...	2·2	25·7	49·2	19·1	3·4	0·4
1910-11 ...	2,788	1	15	164	811	1,165	525	92	15	...	32	529	1,347	715	140	25
	%	...	0·5	5·9	29·1	41·8	18·9	3·3	0·5	...	1·1	19·0	48·3	25·7	5·0	0·9
1911-12 ...																
1912-13 ...	2,832	...	8	164	820	1,152	554	110	24	1	24	392	1,242	851	273	49
	%	...	0·3	5·8	28·9	40·7	19·6	3·9	0·8	...	0·9	13·8	43·9	30·0	9·7	1·7

In the Province of Jutland and Samsó there was a total of 715,814 cows in 1909, of which 72,150 (10·18 per cent.) were under Control Unions. Of the latter there were 2,429 cows (3·30 per cent. of the Control cows), each of which gave over 175 kilogrammes of butter per annum (page 102 of "Beretning fra faellesledelserne kvaegavls og Kontrol módet 1914 i Jylland").

By the work these Unions have accomplished, the cows have become a sort of milking machines, and the yield of milk and butter is regulated by well-defined ways and quantities of feeding articles. Its importance is so well recognized that in some places even private enterprise has stepped in to conduct the Control work for farmers.

For instance at Haslev Mr. S. Laursen had established a Control station with a school attached to it for the training of young men in the Control work. He employed a number of assistants who visited farms entrusted to his care and did the Control work as described above. He was specially employed by the Provincial Association of Seeland as a chemist to determine the value of roots and food stuffs for cattle where the quality and nutritive value of these articles produced on various farms differed.

Mr. Laursen's Inventions.—Mr. Laursen has invented a Control apparatus (Praktisk Kontrol Ryste og Vaske apparat til Gerber Glassene) for accommodating glass tubes containing samples of milk for testing. It is an excellent box in which tubes are safely placed, so that they cannot move, and the box is tightly closed to be carried about with perfect safety. He has also invented a "Kontrolspand," which is largely used for taking weights of milk yield directly it is drawn from the cow. It is a very convenient vessel and serves also the purpose of a milk or water jug.

Feed of Cattle.—In his hand-book "Kontrol-laere," which is intended for students undergoing a training in the Control work, Mr. Laursen has given the following information, which may be useful as a guide to cow owners :—

1. *Cost of feeding a calf or heifer for five months from birth :—*

					Krones.
150	lbs.	whole-milk	@ 5 öre	=	7·50
1,300	,,	skim-milk	@ 1½ ,,	=	19·50
10	tdr.	best	@ 75 ,,	=	7·50
100	lbs.	oats	@ 5 ,,	=	5·00
50	,,	oil-cake	@ 6½ ,,	=	3·25
200	,,	hay	@ 2 ,,	=	4·00
		Total	...		46·75

2. *Cost of feeding for two years from birth :—*

				Krones.
Value of calf when born			...	12·00
400 lbs. whole-milk	@	4 öre	=	16·00
1,200 „ skim-milk	@	1 „	=	12·00
1,200 „ butter-milk	@	1 „	=	12·00
2,400 „ whey	@	¼ „	=	6·00
1,340 „ oil-cake	@	5 „	=	67·00
3,500 „ beet refuse	@	⅕ „	=	7·00
Hay in winter ...	...	...	=	16·00
Grazing in summer	...	...	=	40·00
		Total	...	188·00

1 pasture day = 9 to 12 F. E.

A dry cow or a cow giving 1 to 7 lbs. of milk = 10 F.E. and in addition 1 F. E. for every 4 lbs. of milk until 18 F. E. equals 40 lbs. of milk.

3. *Nutritive value of cattle food :—*

	Albumen.	Fat.	Sugar.
Sunflower cake ...	27·9 %	8·1 %	25·1 %
Beetroot	0·8 %	0·1 %	9·2 %
Hay	5·4 %	1·0 %	41·0 %

4. *The proper feed of a Danish cow for a day was as under :—*

	Albumen.	Fat.	Sugar.
2 lbs. sunflower cake	55·8	16·2	50·2
40 „ beetroot ...	32·0	4·0	368·0
6 „ hay of medium quality ...	32·4	6·0	246·0
Total ...	120·2	26·2	664·2

$$(26{\cdot}2 \times 2{\cdot}5^{*}) + 664{\cdot}2 \div 120{\cdot}2 = 6{\cdot}07$$

Nutritive proportion of fat and sugar to albumen is 6·07 to 1.

Soya bean, turnips and carrots are objectionable for good butter.

*Fat = 2·5 times sugar.

Classes of Cows and their Weeding out.—Danish cows calve at the age of 2 or 2½ years. They calve generally in autumn (September or October). They are classed as under :—

1st class cows which have calved three or more times.
2nd „ „ „ twice only.
3rd „ „ „ once only.

First-class cows if not giving good results are removed from the herd, while 2nd and 3rd class animals are given every trial to prove themselves remunerative. The results of tests are taken for three or more years to judge the value of a cow.

The following are the periods of calving :—

Mares	340	days.
Cows	280	„
Sheep	154	„
Swine	112	„
Bitches	63	„
Cats	58	„

Hatching period for—

Turkeys	28	days.
Geese	30	„
Hens	21	„
Pigeons	18	„

A General View of Cattle Improvement.—In this connection the following information kindly supplied by Stats Konsulent P. A. Mórkeborg R. P. P. is highly interesting :—

(*a*) Since the eighties of the last century when Co-operative Dairies with centrifugal cream separators were established in Denmark, Danish farmers have seriously taken up the question of procuring the most productive cattle and of tending and feeding them well to obtain a maximum yield of milk and butter-fat with a minimum of cost.

(*b*) *Cross-breeding failed.*—In Denmark there are two breeds of cattle, the Black and White Jutland, and the Red or Red and White Island breed. Both were milking breeds but not well developed. In the first half of the 19th century many attempts were made to improve these breeds by crossing with foreign breeds, but experience showed that better results were obtainable from the native breeds alone if they were well cared for. From the year 1870 the two National breeds have been kept pure, each confined to its own Province.

(*c*) *Cattle Shows.*—The first step to improve the cattle was the introduction of cattle shows. At first all breeds and crosses competed together, and the judges awarded prizes to individual animals which appeared to be the best milkers. Later on the different breeds were kept separate, and prizes were awarded for animals possessing the typical characteristics of the breed.

(*d*) Later on it was found that individual breeders could exercise the greatest influence on the general development of breed by supplying superior breeding animals to other herds. This led to a change in the management of shows, and prizes were awarded not on single cows but for collections of cows bred by the exhibitor, the idea being to point out to intending buyers the herds from which they should buy. This change took place about the year 1870 and is still in force.

(*e*) *Merits of Bulls.*—In judging the merits of bulls, the quality of their offsprings is considered to be the best proof of their breeding value. Although the judging of the offspring takes a long time, it is a most useful criterion and a sqecial feature of Danish shows. The judges do not restrict themselves to a consideration of the points of the exhibited animals, but also take into account in the case of bulls, the pedigree and records as to the milk yield of the dam, grand dam, etc., and in the case of cows the milk production, both in quality and quantity.

(*f*) *Breeding Centres.*—Another means of developing cattle-breeding has been the systematic selection of the best herds, officially styled as "Breeding Centres." In order to judge the merits of such herds in a thorough manner, competitions are carried on in a course of two years in the following manner, *i.e.*, a committee of judges visits each of the competing herds five or six times on the farms and is assisted by young men who on every twentieth day during the two years, visit each of the competing herds, weigh the milk of each cow, test its percentage of but-

ter-fat, weigh the fodder given to each cow, and draw up the Family Herd Books, etc. After the two years' testing, the committee of judges award the designation of "Breeding Centre" to such of the competing herds as satisfy the requirements, and the award is published for general information. The Family Herd Book is drawn up for each herd and is left with the owner. In it the whole herd is arranged according to maternal descent, and for each animal information is given as to sire and dam, description, production and prizes. This information is of special value to intending buyers.

(*g*) *Cottle-breeding Unions.*—Before the year 1970 little attention was given to the bull, the nearest bull or the cheapest bull was considered the best. With the introduction of Co-operative Dairies greater attention was given to the feeding and production of herds, and the value of the sire as equal to that of the dam was generally acknowledged. The idea of using a common bull then came to the farmers. This was the beginning of Associations for Cattle-breeders, which arranged that only best cows should be served by the Association bull, and these cows should be selected by the Committee. The Committee were to inspect the various herds of members of the Association and ascertain the state of health of the animals. The offsprings of selected cows by the bull were to be presented at local shows. The members of the Associations were required also to keep accounts of the feed and production of individual cows. The first of these Associations was formed in 1883, but there was no appreciable development until the State offered in 1887 a yearly grant to these Associations. There are now 1,300 Associations of Cattle-breeders with 1,500 bulls, and for each bull the State gives a yearly grant of 145 krones on the condition that the bull has taken a prize, that it is examined by a Veterinary Surgeon twice a year, that best cows of members are selected by the Committee to be

served by the bull, and that the Committee at least once a year inspect all the herds in the Association as to their health.

(*h*) The effect of these Associations on the development of Cattle-breeding has been very satisfactory. There are 1,500 really good bulls now constantly in use in the country. The increased demand for good breeding animals has resulted in better prices, which encourage the formation of new Breeding Centres. The prices of young bulls which these Associations pay vary from 700 to 2,500 krones per bull.

(*i*) Generally about 80 cows are served by one bull and the annual subscription of members averages about 3 krones per cow, but is more in the Associations with more expensive bulls. The members' subscription is kept down not only by the State grant of 145 krones but also by the money prizes awarded for the bulls at the shows.

(*j*) *Formation of Control Unions.*—The Cattle-breeding Associations carried out their programme satisfactorily, except the keeping of accounts of feeding and production of individual cows. When in the beginning of the nineties their account-keeping was increased by the growing demand for information as to percentage of butter-fat in milk, it was found quite impossible for these Associations to do this work, although its importance was recognised by all members. It was particularly necessary to have the richness of milk tested, as no outward sign gives any indication of this important constituent.

(*k*) This led to the formation of what are now known as the Control Unions. For a time the work was carried on without a regular organisation, but in October 1894 [see "Beretning om Praemiering af hele Mejeriibesactning i Fyns stift, 1897."—the Report of Cattle-breeding Competitions (Breeding Centres) in Funen for the period from October 1894 to 30th June 1896] rules for the formation of typical Control Unions were drawn up, and the first Union was established at Vejen in May 1895.

CHAPTER VII.

Co-operative Dairy Organisation.

Section 1.—Co-operative Dairies.

In 1875 the price of grain was very good and the farmers made a fair profit on it; but in growing corn they starved the soil, and the cows were badly fed and hardly any artificial manure was used. Then the price of grain dropped and the farmers had to face the alternative of either losing their capital or giving up corn-growing in favour of the raising of cattle and producing of meat and butter. They had to increase their stock, enlarge their barns and farm buildings, and buy feeding stuffs, such as oil-cakes, bran, etc., to increase this new production. For the first 7 or 8 years they had very hard times. The big farms could somehow make both ends meet, but the small farms could not. The reason was that the butter produced by Centrifugal Cream Separators at large farms was of a superior quality and they got 115 óre per pound for it, while the small farmers, using old methods of butter production, received only 78 óre per lb. The problem was to find a way to enable the small farmers to get the same price as the others, and this was found in Co-operative Dairies, which brought about a 60 per cent. increase in the milk-yield from the cows by the Control Work—keeping of accurate accounts of their feed and milk and butter yield, the careful selection of cows and by the production of more food for the cows.

The introduction of the Centrifugal Cream Separator and Co-operative Dairies have transformed the milk industry of Denmark. The Dairies are worked by machinery, where the produce of all the members is jointly dealt with. By dealing with large quantities of milk at a central place, large savings are effected in the cost of manufacture, every particle of milk is fully utilized, the quality and quantity of out-turn are enhanced and the waste is reduced to a minimum.

The first Co-operative Dairy in Denmark was started in the year 1882 at Varde or at Horsens. On the 31st of

March 1913 there were 1,190 such Dairies in the 17 districts of Denmark.

When a Co-operative Dairy is about to be started it is generally 10 or 12 farm-owners who join and make arrangements with a bank for a loan to build the Creamery. For turning the milk of 1,000 cows into butter, the cost of the building and outfitting of a Creamery generally amounts to 35,000 krones (about £2,000=Rs. 30,000), which loan is amortized with 1,000 to 2,000 krones per year.

The radius of the circle within which the farms are situated should not be more than four miles, otherwise the expenses of carriage would be too high. The carriage is always paid by the Creamery, as it might otherwise be disadvantageous to those members who have the longest distance to drive.

The position of the Creamery should be as central as possible according to circumstances, and should especially, if possible, be situated on a high ground.

There is generally a committee of five members, of whom one is salaried for keeping the accounts and controlling the business. The dairyman who makes the butter gets usually free house, milk and butter for his own use and £200 annually, but has then to pay the hands who assist him, and find the expenses for colour, rennet, machine oil, acid, etc., so that his remuneration does not come to more than £100 per annum.

A cow usually yields 5,500 lbs. milk per year, so a Creamery based on the milk supply of 1,000 cows receives during the year 5,500,000 lbs. milk ; and as 25 lbs. milk are necessary to turn out a pound of butter, the produce of the Creamery is 220,000 lbs. of butter yearly. As regards the delivery of milk, it is obligatory to each member to deliver to the Creamery all the milk he produces, and he must only keep back what is necessary for his private use at home.

The price of the milk is regulated by its contents of fatty substance, and the weekly butter quotations are fixed by the Chamber of Commerce in Copenhagen, otherwise known as the Butter-pricing Committee.

The milk must be put in a cool room immediately after milking and no goat or sheep milk must be mixed in it. If a cow is suspected of having some disease, the milk must be delivered in a separate can and *marked*.

Every member gets back skim-milk and butter milk from butter-production or whey from cheese-production, in proportion to the weight of whole-milk he has delivered. He usually gets 92 per cent. skim-milk or butter-milk or whey of the weight of whole-milk he has delivered. In some cases the farmer does not wish to get the skim-milk or whey back, and it is then sold from the Dairy at prices varying from $1\frac{1}{2}$ to 4 öre per can of two litres.

To avoid the spread of infectious diseases, the Government has enforced the rules contained in the Tuberculosis Act of March 1908, to the effect that all skim or butter-milk and whey, which is returned or sold from the Dairies must have been warmed up to 85 degrees Celsius (185° Faht.) before it leaves the Dairy.

It is difficult to give any figure to indicate the profit to be distributed to the members at the end of each year. It is very much dependent on the butter prices, which regulate the prices paid to members for the whole-milk they deliver. If the Dairy pays prices for the whole-milk, which are high in proportion to the butter prices, the profit to be distributed at the end of the year will of course be small.

The farmers prefer to get as much cash as possible at the delivery of milk, and the small amount of money which is left in such case at the end of the year is then put into a reserve fund. There is no doubt that it is more profitable for farmers to sell their milk to a Dairy than to turn it into butter themselves. The Dairy produces a large homogeneous brand of butter, which commands a much higher price than what individual farmers could produce : the Dairy is therefore able to pay a high price for the milk delivered.

Of the Danish Co-operative Dairies, the largest is that of Trifolium, at the village of Haslev, a railway station in the south of Seeland. This society differs from others in Denmark, inasmuch as its membership is made up entirely of large estate-owners having each from 32 to 271 cows. There were only about 90 members in the society, who sent in the milk of 10,383 cows. The total quantity of milk received during the year 1912-13 was 26,845,565 half-kilogrammes, and the year's turn-over amounted to 3,120,990 krones. Chapter VIII gives full details of its working.

In the village of Haslev there was another Co-operative Dairy belonging to small farmers, with a membership of 176,

owning about 1,200 cows in all. Its annual gross income amounted to about 220,000 krones. For further particulars see Chapter IX. Another Co-operative Dairy, the "Tudse Naes" at Udby in the Holbaek district, was visited and a full description of the system of working and the forms for keeping accounts with its members and the Export Agency, are given in Chapter X, which includes also the sample form of the yearly accounts prescribed by the Dairy Statistics Committee, Odense, for the guidance of Danish Dairies.

The Trifolium has also its branch of milk supply (maelkforsyning) at Copenhagen, which supplies milk and cream of different kinds and grades for use in households, as well as in hotels, hospitals and retail shops in Copenhagen. A description of this factory also is given in Chapter VIII. It is no doubt a model for the supply of pure, wholesome milk, cream, etc., for towns and cities. The total quantity of whole-milk dealt with in the factory amounted to 8,001,541 kilogrammes, and the total sales to 2,125,193 krones during the year 1912-13, making a profit of 106,000 krones after defraying the working expenses and other charges. Appendix II embodies the conditions usually enforced by Milk Supply Companies in Copenhagen upon the farmers supplying their milk to such companies. They contain useful hints and valuable directions.

Appendix I embodies the Articles of Association of Co-operative Dairies in Denmark. These Articles contain the general principles, but there is usually a good deal of difference in the actual text of many of them. The number of years fixed as the "guarantee" period varies from 7 to 20, and the number of committee members from 5 to 12. Provisions are made differently for management, pricing of milk, etc., according to the choice of members and requirements of locality, etc.

In cases where the milk of any supplier is found to contain less than 2·8 per cent. of butter-fat, a notification is immediately sent from the Creamery that attention must be paid by the supplier to his milch cows and to the conditions under which they are fed. Failure on the part of a supplier to comply with the terms of such notice is followed by fines, as well as inspection of the herd at the expense of the farmer concerned.

Danish Creameries supply their members with a set of rules for the general treatment, feeding and milking of their

cows. These rules are printed in large type on cards which can be put up in the byres or in the farmer's own residence. At the top of the card are the words "Good Advice," beneath which is a drawing of the udder and teats of a cow, with the hands of the milker placed in the proper position. The rules on the card read as follow :—

(1) The cow is a living machine.
 (*a*) Kindly treatment entails less labour and gives more milk.
(2) Good work improves the living machine.
 (*a*) Milk clean. Clean milking develops the udder, and with this increases the quantity of milk ; and
 (*b*) You receive richer milk.
 (*c*) Remember that the milk last drawn is by far the most valuable.
(3) Cleanly milking,
 (*a*) You should wear tidy and clean clothes.
 (*b*) Have the milk pail clean as well as the cream can.
 (*c*) Thoroughly clean the udder by rubbing with a piece of linen.
 (*d*) Wash the udder thoroughly before milking.
 (*e*) Let the udder be quite dry before you begin milking.
(4) Carry out the work properly.
 (*a*) Milk with dry hands.
 (*b*) Seize the teats with the whole hand.
 (*c*) Keep a gentle pressure on the udder.
 (*d*) Milk as fast as you can, and never cease working until the milk is wholly drawn.
 (*e*) Don't strain the teat beyond its natural length.
 (*f*) Remember the value of the last drops.
(5) Healthy state of udder.
 (*a*) If there be soreness or bumps in the udder or teats, stoppage in the milk canal, or unnaturally coloured milk, don't mix the milk with any other, and don't send to the Creamery.
(6) Milking times.
 (*a*) Begin milking always at fixed times.
 (*b*) Milk the same cows in the same order.
(7) Regard the excellent work as one of honour.

Farmer mark this well—

(1) Clean the cows.
(2) Have good air in the stables.
(3) Light should be fairly admitted.

Page 280 and Table IX of "Danmarks Mejeri Drifts Statistik" for 1913 gives the following average results *per Dairy* for that year for the twenty Divisions in which the Dairies are situated in Denmark:—

	1913.	*1912.*
Number of milk suppliers ...	157	156
„ „ cows	958	956
Value of property	33,212 kr.	31,677 kr.
Balance of debt on capital account.	16,315 kr.	16,333 kr.
Surplus profits paid during the year	36,948 kr.	36,237 kr.
Yearly milk-yield per cow ...	5,242 ½-kg.	5,040 ½-kg.
Consumption of ½-kg. milk for a ½-kg. butter	25·3 ½-kg.	25·5 ½-kg.
Butter prices per ½-kilogramme ...	167·7 öre	110·9 öre
Gross income from butter of 1,000 ½-kg. whole-milk	4,206 öre	4,348 öre
Working expenses (excluding cheese-making) per 1,000 ½-kg. whole-milk	443·9 öre	444·5 öre
Reduced ditto per 1,000 ½-kg. whole-milk	275·2 öre	280·9 öre
Net income per 2 kg. milk used in butter-making	18·9 öre	19·4 öre
Cheese-milk net value	9115·7 kr.	9,111·36 kr.
Net profit on total cheese-making..	1,622·18 kr.	2,322·18 kr.
Gross turn-over	2,73,306 kr.	2,66,800 kr.
Net price per 2 kilogrammes milk	19 öre	19·6 öre

Section 2.—District Dairy Associations.

The Co-operative Dairies are affiliated to 21 District Dairy Associations (Mejeri-foreninger), which deal with matters common to all the Co-operative Dairies in the district or locality, and aim at their general improvement and uniformity in their working. Their expenses are met by contributions from the Dairies as shown in the table

which follows. The following are the general objects of the District Associations :—

(i.) Improvement of the quality of Dairy butter through various experimental investigations which are constantly being made in connection with its manufacture.

(ii.) Organization of district butter competitions from time to time and the circulation of clear and accurate information among the exhibitors, of the best means by which butter of high quality may be produced.

(iii.) Institution of lectures and discussions at various places in the district concerned by each society, frequent visits to Dairies and the spread of information among farmers with reference to the treatment and general arrangement of milch cows.

(iv.) Preparation of comparative returns setting forth the actual cost of production, the actual price realised for butter, and the actual amount paid for milk to the farmers by the different Dairies.

(v.) Supervision, in conjunction with experts, by "Control" work in the direction of improving the milch cows kept by the farmers in each district.

(vi.) Assisting generally in giving practical effect to the recommendations of the various Central organizations at Copenhagen and Odense, having for their object the development of dairying.

The immensely valuable work performed by these District Associations, with an exceedingly limited income, cannot be over-estimated. They all work in perfect harmony with the Association of Creamery Managers, and, as far as the dairy industry is concerned, with all forms of Agricultural Societies.

The following table gives the names of the District Dairy Associations, the date of their foundation, the number of Dairies affiliated to each, the rate of contribution from the Dairies, and their annual income :—

Name of District Union.	Year Founded.	No. of Dairies affiliated.	Rates of Contribution from Dairies.	Total Income.
				Krones.
Kóbenhavns Amts ...	1907	17	3 öre per 5,000 kg. milk ...	305
Frederiksborg Amts ...	1904	22	10 kr. plus 8 kr. per million kg. milk.	
Holbaek Amts ...	1906	45	10 kr. plus 6 öre per 5,000 kg. milk	1,500
Soró og Tilgraensen de Amters...	1898	55	4 öre per 5,000 kg. milk ...	1,000
Soró-Praesto Amts ...	1893	48	10 kr. plus 8 kr. per million kg. milk.	
Bornholms	1908	18	10 kr. plus up to 1 kr. per 50,000 kg. milk.	
Maribo Amts	1905	33	5 kr. plus 4 kr. per million kg. milk	330
Fyns	1894	169	2 öre per 1,000 kg. milk ...	9,800
Vejle Omegns (neighbourhood)	1905	26	16 kr. per 1,000,000 kilogrammes milk	800
Sydjysk (South Jutland).	1891	41	2 öre per 50 kg. butter	1,400
Aarhus Omegns ...	1895	87	10 kr. plus 20 kr. per million kg. milk	5,000
Midjysk (Middle Jutland)	1894	49	2½ öre per 50 kg. butter	1,500
Silkeborg og Omegns ...	1895	21	12 kr. per million kilogrammes milk	650
Randers Amts	1899	55	12 ,, ,, ,, ,,	1,260
Aalborg Amts	1900	66	18 ,, ,, ,, ,,	2,000
Hobro og Omegns ...	1907	23	14 ,, ,, ,, ,,	680
Vendsyssel	1900	52	7 öre per 1,000 kg. milk	800
Thisted Amts	1895	29	70 öre per 50,000 kg. milk ...	1,040
Viborg Amts	1894	42	1 krone per 50,000 kg. milk ...	1,750
Rinkóbing Amts ...	1894	87	16 krones per 1,000,000 kg. milk.	2,900
Ribe Amts	1895	57	14 öre per 10,000 kg. milk	1,500
21 Unions. Total ...	...	1,042	Total ...	37,000

In most of these districts there is a Milk Judging Union (Maelkebedommelses-forening) with a certain number of Dairies affiliated to it. These Unions have a committee consisting of a Formand and a Milk Judge, who go to the Dairies occasionally and record their opinions of the milk received from the farmers. These opinions are communicated to owners of milk, and any complaints or defects pointed out are remedied.

Section 3.—Central Dairy Associations.

Then the Dairies of Seeland, Lolland-Falster and Bornholm have, since 1901, established their Joint-working Provincial Union (Samvirkende) in Copenhagen, to which 7 Mejeri-foreninger (District Unions) representing 238

Dairies subscribe. It has a committee of seven members, one or two representatives from every Foreninger, who elect their own Foremand (President). Similarly there is a Union for Jutland (De Samvirkende Jyske Mejeri-foreninger) since 1895, with its head-quarters at Viborg. It represents 13 District Unions with 635 Co-operative Dairies. The committee consists of one representative from every seven or less District Unions, with a President who serves also as Treasurer of the Union. The President holds the office for two years and the two members for one year. The annual expenses amount to about 19,900 krones, which are met by a contribution of $2\frac{1}{2}$ krones per million pounds of milk dealt with in the Dairies.

For the province of Funen there is only one Association (Fyns Mejeri-forening), established since 1894 at Odense, which serves as a District as well as Provincial Association for the 169 Dairies affiliated to it. Its expenses amount to 9,800 krones yearly, which are met by a subscription of two öre per 1,000 kilogrammes of whole-milk dealt with in the Dairies.

Internationalt Maelkeri-forbunds danske Afdeling.—This is the Danish branch of the International Dairy Alliance (La Federation Internationale de Laiterie), which used to meet at Brussels after intervals of three years, with the object of holding International Dairy Congresses and Dairy Exhibitions. The Danish Branch has three members in the committee, including the Formand, which office is at present held by Professor B. Bóggild (R.p.p.) The subscription from Unions or private firms is 25 to 100 krones and from individual members 10 krones per annum. It has 15 firms, societies and unions and 12 individuals on the list of its members.

Mejeri Statistiks-udvalget.—The Dairy Statistical Committee (established in 1903 at Odense) compiles the statistics relating to prices of butter and dairy-working for the whole country and helps the Butter Quotations Committee with statistics. The Statistical Committee consists of five members, including the Formand, three of whom are representatives of De Danske Mejeri-foreninger Faelles organisation and two of Danske Mejerist-forening. They are all elected for one year only.

For compilation of butter prices and working and other statistics, the committee select a secretary, whose

appointment is subject to confirmation by the Minister of Agriculture.

The yearly expenses of this committee amount to about 23,000 krones, of which the State contributes 10,000 krones and the balance is paid by the Dairy Unions. In return every Dairy receives the weekly butter price statistics, while the annual report of the Statistical Committee and other statistics compiled by them are sent to every member of each Dairy Committee.

Butter-pricing Committees.—For the purpose of fixing the weekly rate for butter to be paid to Dairies by the Butter Export Societies and for payment to farmers for milk supplied to Dairies, there are two committees, *viz* :—

(*a*) *Smór noterings-udvalget* (The Butter Quotations Committee of Wholesale Grocers of Copenhagen formed in 1912).—This committee consists of five members, including a Formand, who meet every Tuesday at 2 P.M. and give the average rate obtained for the Danish butter sold in the preceding week in foreign countries. This rate forms the basis for the weekly prices of whole-milk paid by the Dairies to their members.

(*b*) The other committee is a representative body of Dairies themselves. This committee is known as Mejeri Statistik-udvalgets Smór noterings-udvalget. It has been established also from the same year (1912), has five members and meets every Tuesday at 2 P.M. at the same place, Ritzaus Bureau, as the committee (*a*). They are both independent and work out their own results. As the matter is of great importance to Dairies, they have found it necessary to have their own committee as a sort of check upon the work done by the Grocers' Committee.

De Danske Mejeri-foreningers Faelles-organisation (The Danish Dairy Associations Joint Organisation established in 1899 and revised in 1912).—This Association represents the following Provincial Associations :—

(1). De Samvirkende Sjaelland, Lolland-falsterske og Bornhohnske-Mejeri foreninger.

(2). Fyns Mejeri-forening.
(3). De Samvirkende jyske Mejeri-foreninger.

Its office is to watch matters of joint interest, to handle and solve various questions in connection with the working of Dairies and butter-price statistics. The committee consists of seven members, *viz.*, three Presidents of the Provincial organisations and four members, who remain in office for two years. The committee meets yearly in rotation at Aarhus, Odense and Copenhagen.

Representation.—For every 20 members of their Association, the Provincial organisations send one representative to the joint organisation.

Dansk Mejerist-forening (The Danish Creamery Workers' Association). Established in 1887. Head-quarters at Odense.—The objects of the Association are to develop Dairy-working in general and efficiency in particular, and to have concord in Dairy-workers' wages. The instruction of Dairy operatives in the latest and most up-to-date scientific requirements of their work—keeping the managers of different Dairies in constant touch with one another, and thus enabling them to communicate intelligence rapidly in matters relating to manufacture and marketing of their produce—are some of the specific instances of their objects.

The Head Committee of the Association consists of seven members elected for two years at a time at the annual meeting of delegates. The members elect a Formand from among themselves.

The Association covers the whole country and is divided into 26 Amts kredse (District Business Committees), with a Formand and a large number of members for each district. These local committees are allowed to do their business as they like, and have their own laws designed to meet local requirements. These laws must of course be approved by the Central Committee. They annually hold six to eight Exhibitions of butter and cheese in their own district.

The meeting of delegates is held in October every year, alternately at Copenhagen, Odense and Aarhus. Every kredse sends one delegate for every ten of its members. At the meeting of these delegates all important business is transacted, and the Auditors are elected, as also the Editor

of *Maelkeritidende* (the Dairy organ), Secretary and Treasurer (one officer). Every man who is competent in Dairy practice is eligible for election as a member of the Association.

Committee for Joint Experiments with Cheese (*Udvalget for de Samvirkende Forsögsostninger*).—This committee consists of seven dairy managers, representatives from the different districts, one of whom is elected as President, with a Secretary and Treasurer, the last-named holding his office at Odense. It has two permanent judges, one of whom is in charge of the Experimental Laboratory at Copenhagen.

This Association has been instrumental in organising throughout Denmark a most successful series of Butter Exhibitions, in which the products of the different Creameries are brought into competition with one another, and the local Creamery managers and the members of the committees are afforded the opportunity of contrasting, by actual inspection, the relative merits of butter produced in Creameries under different management.

The provincial exhibitions are held annually in addition to the smaller local exhibitions, and to these the butter made in the Estate Dairies, as well as in the ordinary Farmers' Co-operative Dairies is admitted. Small entrance fees are charged, and the places of exhibition are changed from year to year, so as to bring the display of butter within reach of the people living in different parts of the country.

Members are required to pay a subscription of four krones annually in advance and a subscription of two to six krones as may be necessary for the kredse. The Association had the following capital :—

Interest-bearing	20,000	krones.
Relief Fund...	70,000	„

Its yearly budget comes to 17,000 krones, and the State contributes a sum of 3,000 krones annually towards the expenses of experiments in cheese-making.

The Association has a Relief Fund for straightened circumstances and sickness among its members. It has been established since 1896. The yearly subscription is five krones, or 100 krones once for life. In 1907 they founded a capital of 300,000 krones for Annuity

Insurance, with 592 members. The total number of members on March 31st, 1913, was 1,905.

Danske Mejerist-forenings Ulykkes forsikring (*The Danish Dairyists Association for Accident Insurance*). Established in 1903.—To insure members against personal injuries from accidents, the yearly premia for Dairy managers are: (1) for 1,000 krones payable at death 85 öre; (2) for 1,000 krones on being invalided, 2·20 krones; (3) for 1 krone daily allowance 1·20 krone.

Number of members	493
Capital	30,000 krones.

Statens Lokal Mejeri Konsulenten.—The State employs four Dairy Counsellors at the following centres:—

(1) At Copenhagen for Dairies in Sjaelland, Lolland-Falster, Bornholm and Smaaoer.
(2) At Fredericia for Dairies in Funen and Langeland and certain Amts in Jutland.
(3) At Aarhus for certain Amts in Jutland.
(4) At Struer for certain Amts in Jutland.

These officers are experts in Dairy practice generally, and, when required by a Dairy go there and give advice on Dairy matters. The Dairy has to pay a daily allowance of two krones to cover travelling expenses by rail or steamship irrespective of the distance. Landbrugskand A. P. Hansen, in charge of the first division, had 476 Dairies to look after.

Section 4.—Butter-testing by Government.

The Danish Government allows those Dairies which make butter of the standard quality to use the Government Lür brand on their casks of butter. This brand is accepted in foreign countries, as well as in Denmark, as a guarantee for genuineness of butter. Every cask of Danish butter intended for export has two wooden staves bearing the Government brand, together with the Control number of the Dairy where the butter was made.

In order to assure themselves about the quality of butter made in different Dairies, the Government have a department of their own—the Laboratorium for Landökonomiske Forsög at Copenhagen—where periodical tests of butter

from all Dairies engaged in the export of butter are made as described below :—

Butter-testing by the State.—Under Lov No. 129 of 12th April 1911, all Dairies in Denmark dealing in export trade are required to send in samples of their butter to the State Laboratory at least three times a year. Dairies that are below the average standard are required to send in their samples more frequently until they bring their butter up to the standard quality.

Orders for samples of butter are sent from the Laboratory by letter or by telegram to such Dairies as the officer in charge of the Laboratory may choose at a time. No time is given for butter to be prepared specially for test. They are required to send one of their casks ordinarily prepared for export, and they must comply with such an order without the least delay. A register is kept in the Laboratorium showing the name and situation of each Dairy, with distance from the nearest Railway Station, from the nearest Post Office, from the nearest Telegraph Office, etc., so that when the sample butter is received they can judge from the invoice and date of booking whether the request was immediately complied with or not. If they find a sample was sent after some delay they do not accept it, and call for another sample later on without warning. A set of rules has been issued laying down the procedure followed in the matter.

As the butter is received at the Laboratory the cask is weighed and the weight recorded. The cask is placed in what is called the cooling room, where it is kept for 12 days and then weighed again to ascertain the dryage. The cooling room is kept at a temperature of 8° to 10° Celsius (46° to 50° Faht.).

After 15 days from the date of receipt the butter is judged, when all the casks to be tested are placed in three rooms provided for judging. A committee of nine judges composed of—

6 Butter Merchants,
1 Government Dairy Expert—the States Konsulent for Dairies,
1 Representative of Dairies,
1 Assistant from the Laboratory,

divided into three groups, examine all the samples; three of

the judges being in a room at a time. The casks are covered up with an iron case, so that the marks on the casks are not visible and the judges have no means of knowing to which Dairy a particular sample belongs. The marks are given by each judge separately, *i.e.*, each sample has nine separate awards from the nine judges, three of them recording their marks at a time. In arriving at the final results the average of each group of the three judges is taken first, and then the average of these three averages becomes the final point.

Awards by each judge are recorded in a register kept in the office, but the Dairies are advised of the final result and general remarks only of the judging in a printed form of letter. The letter is sent immediately after the judging, and under the law the Dairies are bound to accept these results. A week later the results are printed in a circular, giving the names of the Dairies which have come out above the normal "character" required. The names of those receiving normal marks or marks below the normal standard are not shown.

Should a Dairy receive three points below the normal a warning is given to it to improve the quality of its butter. If its sample received next time does not show an improvement, the Lür brand is not allowed to such Dairy until such time as its samples come up to the normal standard.

The results of each test are embodied in a printed circular which is issued by the Laboratory. A circular dated 18th July, 1914, showed the results of tests made on 13th July, the butter judged having been received on 29th June, *i.e.*, 14 days prior to the date of judgment. It embodied the following particulars :—

(1) Mark of Dairy.
(2) Name of Dairy.
(3) Country town.
(4) Character of butter. Mark 00 represented the standard quality, + placed over the marks showed the extra good quality, – similarly placed showed the marks below the standard.
(5) Percentage of water found on analysis.
(6) Net weight found on first stripping of cask.
(7) Percentage of dryage after allowing the butter to stand for ten days.

(8) Whether brine flew out.

(9) General remarks which were in the following terms: Unsalted; little moist; unclean due to nail marks; bad texture; rather unclean; full with brine; greasy and unclean; oily tendency (unclean); sour; cheesy sour; unclean and sour; cheesy sour and unsalted; very unclean and sour; etc., etc.

The results of all tests made during the year are summarised in an Annual Report, which is published for the information of all concerned. The work done by this department of the State tends to improve the quality of butter made generally in the country, and ensures the public and purchasers abroad as to genuineness of the Danish butter bearing the Lür brand.

The Laboratory buys the butter brought for test, at the rates notified by the Butter-pricing Committee at Copenhagen and re-sells it on its own account. No fees are levied from the Dairies. The judges are unpaid, except the three Government experts; the only recompense given to the merchant judges is a lunch after the awards are made. The Government vote for the expenses of the Laboratory for the year 1913-14 was 110,992 krones, together with a statutory order for 56,000 krones for butter-judging. This vote, together with the small profit made by the re-sale of butter, the testing of butter is carried out in an eminently satisfactory and scientific manner, giving to the Dairies the very best expert advice to enable them to retain the high standard of quality which the Danish butter has already attained

No preservative or other foreign matter except salt and colouring of Orlean flower is allowed to be mixed in butter. A detection of any infringement of this condition would exclude the Dairy from all future competitions.

Diplomas in connection with these Exhibitions are given after the butter of a Dairy is placed in the 1st class three times in each year for three successive years. The highest diploma is one allowed for butter coming into the 1st class successively for 21 times in seven years.

Section 5.—Government Control over Butter and Margarine Trade.

The State has three Control Districts in Denmark, *viz.*:—

(1) At Copenhagen for Copenhagen and Frederiksborg Amts, together with Holbaek Amt. excluding Samsó,

(2) At Odense for Soró, Praesto, Bornholms, Maribo, Svendborg, Odense, Veile and Ribe Amts,

(3) At Aarhus for Hjórring, Thisted, Aalborg, Viborg Randers, Aarhus and Ringkóbing Amts including Samsó,

each in charge of an officer and an assistant. All of them are graduates in Pharmacy (Cand pharm), and exercise the necessary control.

2. Under the Law of 12th April 1911 (Act No. 129 of 1911) exportation of butter with a moisture exceeding 16% is not allowed. Such butter can, however, be sold in Denmark with the mark "Vandsmór" (watery butter) in large letters painted on casks and also on wrappers in which it is packed after sale, so that purchasers may know what they are paying for.

3. Packages bearing the Lür brand only are allowed for export. This brand is supplied only to such Dairies as comply with the rules and conditions laid down by the State.

4. Foreign butter received in Denmark from Russia, Sweden, etc., is exported from Denmark in tins, and each of such tins bears a stamp impression "Ikke Dansk—Not Danish—No Danesa." Exporters are not allowed to keep any foreign butter along with Danish butter in their stock or warehouses, and the system of branding casks of Danish butter is so designed that any attempt at exporting foreign butter as Danish would be readily detected by the Control Officer, under the arrangement described in paras 5 and 6 below.

5. All Dairies in Denmark are entered in a Register kept in the office of Landbrugets Udfórsels-forhold, each Dairy being allotted a distinctive serial number, which is printed in red ink on the staves for butter casks supplied by this department to that Dairy. Requisitions for these staves and labels to be affixed on the ends of casks are received in that office from each Dairy, and they are accordingly supplied with two staves bearing the Lür brand impression,

and two end labels for each cask to be exported. The number of Dairy given on the branded staves is the permanent number allotted to the Dairy, while the end labels for all Dairies are consecutively numbered in one series only, and the numbers of labels supplied to a Dairy vary from time to time. The individual numbers of these labels supplied to different Dairies are communicated to the Control Officers, who check the Control numbers on the casks, and in case any discrepancy is found, the consignment is at once stopped.

6. Packing of butter is done only in Dairies where it is not possible to mix foreign butter with that manufactured in the Dairy, as any such attempt is bound to leak out, and if an Export Agency were to use the Danish label on a cask of foreign butter, it would be readily found out by a comparison of the number borne on the cask with that on the end labels. The law provides for severe penalties for any violation of the rules and regulations of Government.

7. For the reasons given in para 6, the adulteration of butter in a Danish Co-operative Dairy is hardly possible. No case of such adulteration has been found so far.

8. Strict rules are, however, laid down for the manufacture and sale of margarine, which amply provide against any attempt at adulteration of butter. The following rules are laid down under Act No. 92 of 19th April 1907:—

(1) The manufacturers, importers and dealers in margarine must make their names known to the police and show their books to the proper authorities.

(2) Margarine must be put into an oval form, marked with the name "Margarine," together with the name of the manufacturers.

(3) In retail sales margarine must be wrapped in a distinctive wrapper, bearing the name "Margarine" and the name of the manufacturers.

(4) Manufacture, importation or sale of margarine under any other name is absolutely prohibited.

(5) Margarine may not contain more than 10 per cent. butter-fat, and its colour must not go beyond a certain fixed tint, not deeper than No. 9 as shown on the scale of colours laid down for the purpose.

(6) Nothing but common salt must be used as a preservative.

(7) Strict rules are laid down with regard to the material with which it is to be coloured. Orlean flower is generally used. Artificial colours such as aniline are strictly prohibited.

(8) Margarine must not be found in Dairies or other places where butter is preserved or packed.

9. The Hon'ble Etatsraad Rüdolph Schou (R. Dm. p.p.) mentioned to the writer a case which had just come before him in August 1914, in which excessive moisture was found in a cask of butter. The infringement was very slight, the percentage of moisture being 16·1 %, which exceeded the maximum limit by 0·1 point only. As the Dairy was previously convicted of a similar offence and fined 50 krones, the second offence in this case was met with a fine of 100 krones, with confiscation of the cask of butter, and the name of the Dairy was ordered to be notified in the newspapers. Although the offence was a slight one, still it violated the maximum limit, and the Government would not show any leniency in such cases.

Section 6.—Butter Export Societies.

Apart from the federations for working the Co-operative Dairies, there are combines of such Dairies in different localities for the purpose of more economical and profitable disposal of their butter.

In the formation of these societies the usual rule has been adopted that all the Creameries entering the federation should be bound to supply to it the whole of their butter for a fixed period of years, in most cases five. They have, moreover, jointly guaranteed the capital necessary to provide a centrol depôt and office to carry on the sale business.

The butter received at these depôts is carefully classified by a representative committee on the basis of the Laboratory Competitions at Copenhagen, before being consigned to foreign countries. The price, according to the weekly quotations given by the Butter-pricing Committee of Copenhagen, is, on classification of the butter, remitted

monthly to the Creameries; and at the end of each year the amount realised by sale in excess of the amount paid out to the Creameries, is distributed among the Creameries in proportion to the weight of butter supplied by each.

The standard quality of butter representing that which would realise the Copenhagen quotation is taken at points 10, and a certain rate per pound or per 50 kilogrammes, as may be fixed by each Association, is added to or deducted from, the price for each point, or half point above or below the standard, in working out the prices for individual Creameries.

There were six Associations for the joint export of butter manufactured in 282 out of the 1,190 Co-operative Dairies working in Denmark. Their names are given in clause 4, page 50, section 1, Chapter IV. The Danish Dairies Butter Export Union is one of such societies and the following is a brief account of its working :—

Danske Mejeriers Andels-Smór Eksport-forening (The "Danish Dairies" Butter Export Union).—This Association is the largest body of Danish Dairies which conducts the export trade in butter to foreign countries, such as Great Britain, Germany and Austria.

The head-office of the Association is in Copenhagen, with branches at Frederikshavn, Aalborg, Randers, and Esbjerg. All these five ports have warehouses, from which butter is shipped direct to foreign countries.

140 Dairies situated all over Denmark are affiliated to this Association, and the whole business is conducted on Co-operative lines.

Butter from the various Dairies is received at the nearest shipping warehouse, where it is examined by a committee of three experts, *viz*:—

Two members elected by the Dairies,
One member from the staff of the Association.

Each of these three members judges the quality of the butter received weekly and gives the marks according to his own judgment. The marks of the three judges are averaged and the nearest figure is taken, omitting the fraction of one-third and taking two-thirds of a mark as a full mark.

A weekly statement of all butter received and judged at each warehouse is prepared in the following form :—

Week from 6th July to 11th July 1914.

Names of Dairies.	Marks given by Judges.			Average of marks.	Rounded off to.	Total units.	Total unit points.	Colour.	Salting.	Remarks concerning quality, consistency, brine, packing, etc.	Attributable to.
	A.	B.	C.								
	10	10	10	10	10	7	70				
	10	10	10	10	10	30	300				
	11	11	11	11	11	70	770				
	11	11	11	11	11	50	550				
	10	10	11	10⅓	10	8	80				
	10	9	9	9⅓	9	50	450				
	8	8	8	8	8	10	80				
	11	11	12	11⅓	11	34	374				
	11	9	10	10	10	7	70				
	11	11	11	11	11	36	396				
	11	10	12	11	11	32	352				
	9	9	9	9	9	40	360				
	11	11	11	11	11	30	330				
	11	10	11	10⅔	11	15	165				
	11	12	12	11⅔	12	34	408				
	10	9	10	9⅔	10	40	400				
	11	11	11	11	11	36	396				
	9	9	10	9⅓	9	7	63				
	9	10	9	9⅓	9	30	270				
	10	10	11	10⅓	10	48	480				
	10	11	11	10⅔	11	36	396				
						650	6,760				

(Sig.) Judge's Name.

Payment to the owning Dairies is made weekly according to the marks given by the judges, 10 marks representing the standard quality of butter, those receiving higher or lower marks receiving an extra or lower rate to the extent noted below:—

For	13 marks,	3 kr. per 50 kilogrammes above the standard rate.
„	12 „	1 „ „ „ „ „ „
„	11 „	50 öre „ „ „ „ „
„	10 „	the standard rate.
„	9 „	50 öre per 50 kilogrammes below „ „
„	8 „	1 kr. „ „ „ „ „
„	7 „	2 kr. „ „ „ „ „
„	6 „	4 kr. „ „ „ „ „

In judging the quality of butter, the committee take the fragrance, flavour, moisture, uniformity of colour, salting, texture, etc., of the butter into consideration. The invoice form guarantees the moisture not to exceed 16 per cent.

The prices returned to the Dairies are based upon the latest rates obtained from buyers. If, for instance, the net sale proceeds in a certain week averaged 120 krones per cwt., the price payable to Dairies of average quality would be calculated as follows :—

Sale price obtained	120 krones.
Deduct the Association's expenses for that particular week, say for instance	2 „
Standard rate payable for butter of average quality	118 „

As indicated above, this rate would apply to butter of average (10 marks) quality; butter with lower or higher marks would receive less or more according to the scale given above.

Besides the practical tests made by the committee of judges, the Association have an analytical chemist, who makes analyses of butter received from the Dairies from time to time, a certain number of tests being made weekly, as it is impracticable to test the butter of every Dairy every week. All sales of butter of the 140 Dairies affiliated to the Association to foreign countries are conducted by the Head Office of the Association in Copenhagen. The

affairs of the Association are managed by a committee consisting of three representatives from each of the five Shipping Branches = 15 members, who elect from among themselves the President, the Vice-President, and the Secretary. These three office-bearers represent the Board and appoint the Managing Director. In August 1914 Herr A. Kraunse, British Vice-Consul at Randers, held this office. He was previously the owner of a whole Dairy business, when this Association did not exist. He is considered to be the father of the Association, which came into being in the year 1904. Prior to that there were small Unions conducting the business independently of one another, which still exist and carry on the export trade, and to a certain extent compete with this Association, though their relations are quite friendly with the Association. Now this Association holds 140 Danish Dairies together and conducts the business on one uniform standard for its members.

CHAPTER VIII.

Trifolium Danish Estates' Butter and Cheese Factory.

Section 1.—General.

This is a Co-operative Dairy belonging to large estate-owners. The chief factory is at Haslev, with branches at Faxe, Spanager, Maribo and Dalmore, and one at Copenhagen for the supply of milk to that city and sale of butter and cheese.

2. Operations at the Haslev Factory are two-fold—butter-making and cheese-making.

3. The Dairy is worked daily from 6 A.M. to 5 P.M., with an interval of one hour at noon on week-days, and from 6 A.M. till 12 noon on Sundays.

4. The Factory at Haslev is worked by two high pressure steam engines of 50 H.P. each.

5. The produce of Trifolium is consumed mostly in Denmark. Only a small portion of its cream and cheese was exported to Germany.

6. The society is financed by the Dansk Landmands Bank of Copenhagen at an interest of 5 % per annum.

7. The total sales during the year ending 31st October 1913 were as follow :—

Dairy Produce.

			Kr.
2,205,116	kilogrammes	whole-milk ...	213,677
634,309	„	butter ...	1,323,164
846,227	„	cheese ...	627,289
763,365	„	cream ...	590,685
8,241,690	„	skim-milk ...	188,075
1,348,740	„	butter	37,047
14,052,146	„	whey	71,053
			3,120,990

Copenhagen Milk Supply.

	Kr.
7,292,619 half kilogrammes milk and cream in retail ...	1,558,889
1,486,125 „ „ „ wholesale	212,766
144,237 kilogrammes butter	353,538
	2,125,193
Total Dairy produce and milk supply	5,246,183

Section 2.—Butter-making.

8. *Treatment of Milk.*—Whole-milk from farmers is brought once a day in the morning to the Dairy in cans of 50 litres=100 lbs. Danish, or 112 lbs. English, in carts belonging to the owning farms, the cartage being paid by the Association at rates varying from 3 to 40 óre per 50 kilogrammes, according to the distance.

9. Cans of fresh warm milk to be sent out for sale as whole-milk are placed in cold water to cool down, water being kept running into and out of the tank in which the cans are placed.

10. When required milk is pasteurised by boiling in a special boiler to a heat of 85° Celsius (185° Faht). Simple boiling would be dearer; otherwise it is as good as boiling in a machine boiler.

11. *Weighment of Milk.*—Cans which are not quite full are poured into an open receptacle through a strainer, which holds back any pieces of straw, hair, etc., and the weight of each consignment is taken by a weighing machine attached to the receptacle, and noted down by the receiver.

12. Cows are milked thrice daily, but the milk is brought to the Dairy only once a day. As cans are brought in, the receiver tastes a small quantity to see if it is in good condition before pouring it into the weighing machine receptacle.

13. Cans after being emptied are put upside down on a machine, where any remnant of milk in the can drops down on to a receptacle specially provided for the purpose.

Empty cans are taken back after they are thoroughly washed in the Dairy.

14. Members have the option of buying skim-milk or butter-milk up to 90 per cent. of whole-milk supplied by

them. For these milks they have to pay at the rate of 4 öre per 2 litres and for whey at ½ öre per kilogramme.

15. *Testing of Milk.*—Milk from each farm is tested thrice every 14 days. When put in the receptacle the milk of each owner, brought in several cans, is well mixed and a sample taken in a glass tube by the Control Assistant for taking the percentage of butter-fat in the Laboratory attached to the Dairy. The results of these tests, made with the Gerber apparatus, are recorded in a register kept for the purpose, and weekly averages of the three tests taken in the 14 days are struck in the following manner :—

First test plus second test divided by two gives the average for the first week.

Second test plus third test divided by two gives the average for the second week.

16. *Cream Separating.*—Milk in the above-mentioned receptacle, after weighment and test-sampling, is allowed to run into a larger receptacle, where milk from different farms may get mixed, and wait till drawn into the boilers for the separation of the cream.

17. Whole-milk for the manufacture of butter and cream is drawn from the receptacle (para. 16) into a boiler, where it is heated to a temperature of 50° to 55° Celsius (122° to 131° Faht.) and then run into cream separators, from which cream of a yellowish colour runs out into a drain and is collected in a large drum, while skim-milk of purely white colour, as seen side by side with the stream of cream, goes into another channel and is collected in another drum.

18. *Pasteurising and Ripening of Cream.*—In accordance with the law for the prevention of tuberculosis, which requires that all butter for export must be made from pasteurized cream (*i.e.*, heated at least to a temperature of 80° Celsius), the cream is re-heated to a temperature of 90° to 95° Celsius, and immediately it is run over the cooling apparatus and cooled to 10° Celsius. It is then passed through a pipe into large vats. While passing through this pipe, it goes up to 12°. Eight per cent. sour-milk is then added to the cream and the whole is kept over for 15 to 18 hours, till 6 A.M. next morning for ripening, when it is run down into the wooden churning casks and churned for about an hour by steam power.

19. *Churning.*—During the process of churning, the attendants watch the separation of butter by taking out now and then samples through one of the holes in the lid

of the churn, and as soon as the separation is completed, they spread small bits of ice over the lid and slacken the speed of the churn. By a slow motion of the churn they get the butter to thicken, and finally they drop the bits of ice from the lid into the butter in the cask.

20. Butter-milk is then run out through cocks into a sieve which retains small particles of butter running out with the butter-milk, and the milk is pumped up into cans, which are placed in ice to be cooled down.

21. Cold water is then poured over the butter in the churning casks to wash it, after which the butter is taken out into wooden tubs, and the remaining liquid, which is called valle (whey), is run out in the same manner as butter-milk through the casks and the strainer, and pumped through pipes into another room. This whey is sold back to farmers for feeding pigs.

22. *Salting and Texture of Butter.*—Butter from the tubs is placed in suitable quantities over a circular "worker," a sort of wheel worked by steam power, where the butter is salted and pressed by three or four rollings, done by attendants while the wheel runs round and round. After this process the butter is thrown into two masonry (cement) troughs, filled with cold water, which is constantly replenished by fresh water running through a pipe into the troughs. The butter is allowed to lie over there for about half-an-hour, after which the butter is placed again in small quantities over the "worker," and pressed about a dozen times to squeeze out all surplus water, 16 % moisture being permissible under the Danish Law. This percentage is guaranteed on their invoice form. While pressing on this machine two persons keep the butter folding over and over again every time it is pressed, while the wheel runs round and round, until the butter acquires the necessary texture. It is then weighed and packed in wooden casks (holding 100 lbs. Danish) already provided with a thin parchment paper to cover up the butter. The casks, which have two staves bearing the Lür brand supplied by Government and marks of the Dairy, are sent out for sale through the agencies.

23. *Packing of Butter.*—The parchment paper used in packing butter is specially treated with sulphuric acid and sugar to make it tough and water-proof. It is of a

thin texture like that of a tissue paper. Sheets of this paper also bear the Lür brand as a guarantee for the purity of the butter. See Chapter VII, section 4.

24. *Storage of Butter.*—The godown in which butter is stored is kept cool at a temperature of 12 Celsius (54 Fahr.), by use of an ammonia mixture kept in the pipes fitted up in the room.

Section 3.—Cheese-making.

25. *Varieties of Cheese.*—Cheese is made of—

(*a*) Whole-milk, or

(*b*) Whole-milk, skim-milk and butter-milk mixed together, or

(*c*) Whey,

mixed with rennet, and with or without yellow colouring of Orlean flower. Some 30 to 40 varieties of cheese are made in the Trifolium Factory. The principal varieties are :—

(*d*) Dutch or yellow cheese, usually made of (*a*) or (*b*) : its prices vary from 50 to 70 öre ($6\frac{1}{2}$ to 9 annas) per lb.

(*e*) Cheddar or white cheese, usually made of skim milk, price 15-20 öre (2 to $2\frac{1}{2}$ annas) per lb.

(*f*) Carraway cheese, containing a small quantity of carraway seed, price 18 to 60 öre ($2\frac{1}{2}$ to 8 annas) per lb.

(*g*) Emmenthaler or Swiss cheese.

(*h*) *Brown* (*Myse cheese*), made of whey and syrup, price 15 to 25 öre (2 to $3\frac{1}{2}$ annas) per lb.

(*i*) Kloster cheese, made of whey only.

In making some varieties of (*d*), (*e*), (*f*) and (*h*), milk is taken in the following proportions :—

Skim-milk	85 %
Whole-milk	10 %
Butter-milk	5 %

These proportions are, however, varied according to the quality of cheese required. In some cases whole-milk alone is used.

26. *Process of Making Cheese.*—The milk, mixed or pure, is boiled to 31° Celsius (88° Faht.), and then 1 oz. of a liquid preparation of Orlean* flower for colouring and 4 ozs of rennet are added to 4,000 lbs. of milk, and the mixture is allowed to lie in a tinned tank for 25 to 30 minutes, in which time it gets curdled thick, when it is cut into ½-inch cubes by passing a wire sieve, first lengthway and then cross-way, through the curdled milk. Directly this is done whey begins to separate from the solid curdled matter. For about 20 minutes the whole matter in the tank is stirred by a wooden handle, and then a machine churner is put on and kept working (stirring the matter) for two hours. By these stirrings whey is run out of the solid cubes, which become smaller and smaller. The whey is finally run out of the tank and the solid bits are beaten by two men with their hands and heaped up on both sides of the tank, making a channel in the centre of the tank, through which the remaining liquid whey runs out. Salt is then sprinkled over the heaps, which are beaten again two or three times and filled up in big wooden frames and covered up with wooden lids. They are put one over the other, so that they are pressed by their own weight, and then the cheese is turned over and some more solid bits put in the frames to make up the bulk lost by whey being squeezed out. Finally the frames are put under screw-presses and kept there from 6 to 12 hours.

Wooden frames or moulds of various sizes and shapes are used. Some of them are oblong like bricks, others like round balls or flat of a circular shape like that of a wheel; each of such pieces of cheese weighs from 2 to 150 lbs. When taken out of moulds cheese is put in salt water for 2 or 3 days and then placed on seasoning racks for 5 to 10 months before it can be brought into use. The seasoning racks are kept in a cool place (10°-15° Celsius). It is cooled by an ammonia mixture kept in the pipes fitted up in the room.

27. Emmenthaler cheese is made of whole-milk. Milk is heated to a temperature of 32° Celsius (90° Fht.), when rennet specially prepared for this cheese to produce the required taste, and the colour of Orlean flower, are added.

* This flower is grown in South America, and both these liquids are prepared in Denmark by chemists for use of cheese factories.

The whole is then allowed to settle down for 25 minutes, after which it is cut crossways by a wire sieve and churned with a machine for three-quarters of an hour, during which time the whey is completely separated from the solid pieces. The whey is taken away and the solid matter is strained out and put in frames, where it is first pressed by hand and then under a screw-press. While in the press it is turned after a quarter of an hour, and then after intervals of 1 to 1½ hours for six times, to squeeze out all whey. Some varieties of cheese are turned twice only.

28.—*Rennet.* Rennet is used for curdling milk. To make rennet the liquid of whey is completely separated from the solid contents by boiling for about half-an-hour. The liquid is kept in a wooden cask as stock for use as required. A small jarful (about 3 gallons) of it is taken out, in which a small piece of rennet (a thin covering of one of the four stomachs of some animal) is put and kept for two days in a temperature of 42° Celsius, when it is ready for use in milk.

29. *Klostor Cheese.*—When whey is boiled some solid matter settles down. It is strained through a piece of cloth and used for making Kloster cheese, which is sold at 10 óre per cake of about ¼-lb.

30. *Myse Cheese.*—From whey run out of Dutch cheese, cream is separated and butter No. 2 is made from it. The residue (whey) is used in making Myse cheese. It is boiled for three hours till it becomes thick and taken out of the boiling pans of copper and mixed with syrup in the following proportions :—

Solid matter of boiled whey ...	99 %
Syrup	1 %

The mixing takes about two hours, when it is quite fit to be eaten. It is used chiefly in the Scandinavian countries.

31. From the foregoing it will be observed that no waste is allowed out of milk used in the Dairy. All constituents of milk are brought to proper use, *viz* :—

Firstly, whole-milk for domestic purposes.
Secondly, cream ,, ,, ,,
Thirdly, butter ,, ,, ,,
Fourthly, skim-milk for drinking and cheese-making.

Fifthly, butter milk for drinking and cheese-making.

Sixthly, whey from cheese, after extracting butter No. 2 converted into Myse cheese or used for feeding pigs.

Seventhly, whey (washings from butter) used for feeding pigs.

Section 4. Trifoliums Maelkeforsyning (Milk Supply) at Copenhagen.

32. Whole-milk is brought from farms by rail. A siding is laid into the Factory, over which wagons containing milk are run and the milk delivered at the Factory. Before milk is sent from the farms it is cooled to 10° Celsius (50° Faht.) by the farmers. Appendix C is a set of rules for the guidance of farmers in treating milk and cows at the farms.

33. In the Factory the milk is first run through the cleaning separator (a machine), where any dirt or dust is separated, and then it is run over the cooling apparatus, which has two stages, *viz*:—

(1) The upper one in which cold water is kept.
(2) The lower half in which brine 15° Celsius below 0° is kept.

By running over this apparatus the milk is cooled to 20° Celsius and is collected in a tank under the apparatus, both of which are on the first floor of the Factory. From this tank milk is allowed to run down in another tank kept on the ground floor, from which it is automatically bottled without being touched by hand. The work is done pretty fast. Bottles are simply placed under the fillers and the milk runs into them. A female attendant removes these bottles and places them on a table by her right side, and another woman puts on a thin cardboard stopper over the mouth of each bottle, with pressure under a machine employed specially for this purpose. The stopper tightly closes the bottle, so that the milk does not run out even if the bottle is held upside down.

34. The attendants looked very clean, dressed in clean white aprons. There were 45,000 bottles to be filled in six hours, from 10 P.M. to 4 A.M., with five filling machines.

35 Three cooling apparatuses were provided on the first floor, *viz.*, one for ordinary whole-milk, one for milk

for children, and the third one for cream. Below these, on the ground floor, there were separate tanks and filling machines for these three kinds of articles.

36. Children's milk was from the best cows: it had a butter-fat percentage of over 3. It was tested for tuberculosis specially, and the bottles containing this milk were sealed with tinned plumps at the ends of a thread passed through holes at the mouth of the bottle over the cork, so that the cork could not be removed without breaking or removing this seal. The plumps had two circular parts which when pressed one over the other with a pressing machine, made up the seal.

37. After being bottled or filled in cases, milk was stored in a room kept cool at 15° below 0° by brine filled in tubes. When the milk was sent out, pieces of ice were strewn over the bottles. Large customers like the Army, Hospitals, etc., received their milk in cans of 25, 50 or 55 litres. There were smaller cans of 1, 2 or 3 litres also.

38. There were 400 persons employed in the Factory, and a total of 25,000 kilogrammes of milk was daily dealt with.

39. Bottles used for the milk were first cleaned on the revolving-wheel of a machine, of which there were five in a separate room allotted for the washing of bottles. Each of these machines held 300 bottles at a time, and all the 45,000 bottles were cleaned in five or six hours. Bottles were first washed with chalk-water heated up to 35° Celsius (95° Faht.) and were cleaned with a revolving brush. Then they were put in holes on the large wheel of the machine filled underneath with 65° Celsius (149° Faht.) hot soda-water, in which bottles were dipped and kept for 15 minutes. Afterwards they were removed and placed on another machine with their mouths downwards, to be washed with pure water running out from spouts and brushed again for the second time.

40. Cans used for milk were washed with hot soda and chalk-water, and again with pure water and steamed over the steaming apparatus to kill any germs.

41. The Factory was provided with a Bacteriological Laboratory, where milk was tested with an electric apparatus to count the bacteria in the milk to see that the milk was clean and properly cooled, and samples of milk were

also tested on the Gerber Testing apparatus to ascertain the percentage of butter-fat; this was done in five minutes, with 1,000 revolutions per minute.

42. 45 carriages drawn by one or two horses each, according to the distance, with one coachman and five or six boys on each car were employed for the distribution of milk in the city of Copenhagen for large customers. The distribution was commenced early every morning.

43. A small Dairy was attached to the Factory chiefly for separating cream from milk. Any cream which remained unsold was churned and converted into butter.

44. Joghurt was made with a temperature of 40° to 42° Celsius. The chemist said they did not pasteurize the milk, except for those who specially required it. Raw milk, he added, was better than pasteurized, provided it was from good healthy cows.

45. The following were the prices at which the products of this Factory were sold to the public:—

	Per Full Flask.	Per ½ Flask.	Per Glass.
Bulgarsk joghurt (sour-milk)	...	30 öre.	15 öre.
Bygkærnemælk (barley-milk) ...	15 öre.	8 „	
Milk of Jersey cows	27 „	14 „	
Börnemaelk for infants	22 „	12 „	
Whole-milk	19 „	10 „	
Half skimmed-milk	10 „	6 „	
Butter-milk mild	12 „	7 „	
Sour and Pasteurized.			Per ¼ Flask.
Whip cream	140 öre.	70 öre.	36 öre.
Cream I	96 „	48 „	26 „
Cream II	76 „	38 „	20 „

46. Besides this Factory, there were other Milk Supply Associations for the city of Copenhagen.

47. Members were paid for their milk every 14 days on the basis of the butter-fat found in their milk in the Laboratory, *vide* para 15. Approximate prices for these payments are arrived at according to the printed tables prepared by Prof. N. J. Fjord. The following procedure is followed in arriving at these rates :—

48. The total weight in kilogrammes of whole-milk supplied by each farmer during the 14 days is multiplied by the average percentage of butter-fat found in his milk, converting the figures into what may be called butter-fat units.

These units for all milk received by the Association at Hasley and branches are totalled together and divided by the total weight (kilogrammes) of milk received. The resulting quotient is called middle fedt (middle fat or average percentage of butter-fat), as shown in Statement A.

16th to 22nd July 1914. Dalmore Dairy Branch.

(A)—Statement showing the total quantity of milk received during the period from 16th to 22nd July 1914, and pricing of same as described in para 49 :—

Farm No.	Butter fat percentage.	Quantity of Milk in Kilogrammes supplied.	Butter-fat Units. Columns 2 × 3.	Rate per 2 Kg.	Amount payable. Columns 3 × 5.	
				Öre.	Kr.	Öre.
31	3·71	9,429	3,498,159	16·4	773	17
32	3·30	8,451	2,788,830	14·3	604	24
33	3·40	6,550	2,227,000	14·9	487	97
34	3·40	9,281	3,155,540	14·9	691	43
35	3·58	4,917	1,760,286	15·8	388	44
36	3·40	7,468	2,539,120	14·9	556	36
37	3·26	8,910	2,904,660	14·1	628	15
38	Going	in Hasley list.				
39	3·67	4,618	1,694,806	16·2	374	05
40	3·35	3,525	1,180,875	14·7	259	08
41	3·89	2,137	831,293	17·4	185	91
42	3·35	2,780	931,300	14·7	204	33
43	5·50	1,548	851,400	25·7	198	91
Total.	3·50 Column 4 divided by col. 3.	69,614	24,363,269	15·9 Taken from Fjord's Table.	5352	94

49. Taking the above figure of 3·50 for the middle fedt in the narrow strip of Prof. Fjord's table,* and placing it under the column of butter price obtained for the week, over the line in the middle of Professor Fjord's larger table, we get the rates for various percentages of butter-fat found in the milk of different farms. In getting out these rates the ruling market rate for butter as given by the Grocers' Association is also taken into account along with the middle fedt.

Accordingly approximate payments are made to the farmers for milk supplied every 14 days, less the value of supplies made to them. (See Statement B.).

(B)—Weekly account of each member for 14 days' payment. April 1914.

* These tables are obtainable from the booksellers in Denmark. The rates given in Prof. Fjord's tables are per two litres or kilogrammes.

Date.	Whole-milk.		Value of Whole-milk.			Amount.		Supplies to Members					
	Kg.	% of Fat.	Butter price per lb.	Rate per 2 kg.	Average percentage of fat for all members			Skim Milk.	Butter Milk.	Whey.	Cheese.	Butter.	Cream.
						Kr.	Öre.	Kg.	Kg.	Kg	Kg.	Kg	Kg
16	1,022	...	...	According	As per	.	...	550	...	350	...	5	1
17	1,055	3·36	...	ing to	Form A.	...	...	550	..	350	...	...	...
18	1,045	...	...	Fjord's		...	...	550	...	350	...	5	...
19	1,014	...	...	standard		...	...	550	...	350	...	...	¾
20	1,033	...	...	table.		...	...	550	...	350	...	...	...
21	1,005	...	...			...	...	550	...	350	...	5	¾
22	1,027	3·30	...			...	...	550	50	350	...	...	...
	7,151	3·33	öre 97·	öre 13·7	3·39	489	84	3,850	50	2,450	...	15	2½
23	1,078	...	...			...	...	550	...	...	...	...	..
24	1,044	...	...	...		...	..	550	...	...	...	5	¾
25	1,058	...	...	...		...	...	550	..	...	14·34	...	...
26	1,047	...	...			...	...	550	...	...	...	...	¾
27	1,040	3·28	...			...	...	550	...	...	...	...	...
28	1,026	...	...			...	...	550	25	...	...	...	...
29	1,069	...	...			...	...	550		...	...	5	¾
	7,362	3·29	94	13·0	3·40	478	53	3,850	25	2,450	14	10	2¼
	14,513	...	...	..	...	968	37	7,700	75	4,900	14	25	4¾

	Kg.	Krs.	Öre.		
Skim ...	7,700	154	...	...	...
Butter-Milk ...	75	1	50	...	...
Whey ...	4,900	24	50	...	...
Cheese ...	14	4	76	...	...
Butter ...	25	49	90	...	...
Cream ...	4¾	5	70	240	36
Net amount payable				728	01·

For payment of

Kr. 728·01.

Communicate hereby your acceptance.

Note.—This record is kept in a bound book which is sent to the member every 14th day.

50. Final accounts are made up every half-year ending 30th April and 31st October, when surpluses due to them are paid in proportion to the kilogrammes of milk supplied by them during the period.

At the end of each half-year the accounts of the Association are made up, showing on the receipt side—

(1) Balance brought forward from last account.
(2) Sale proceeds from various products.
(3) Profits made at the Copenhagen Milk Supply.

From these are deducted the working expenses, and the surplus is worked out at a rate per two kilogrammes and paid finally to the members on the weights of milk supplied by each during the period. The following is the form of their half-yearly and yearly accounts :—

Income.		Expenses.	
Balance brought forward ...		Carriage of milk	
		Coal	
Profits from—		Miscellaneous	
Whole-milk (sód maelk) ...		Office expenses	
Cream (flóde)		Wages of cheese-makers ...	
Butter (smór)		„ butter-makers	
Cheese (ost)		„ machinemen	
Skim (skummet maelk) ...		„ cleaners	
Butter-milk (kaerne maelk)...			
Whey (valle)		Interest	
		Depreciation	
Profits in Trifoliums Maelkeforsyning		Bad outstandings	
		Maintenance of cans, wagons, machinery, buildings, plant, etc.	
		Share of surplus payable to director and functionaries ...	
		Surplus payable to members—	
		1st-half-year	
		2nd „	
		Balance carried over to next year	
Total ...		Total ...	

For distribution of the "surplus" among the members, a half-yearly statement is drawn up in the following form to arrive at the rate per two kilogrammes payable to the members :—

1 Month.	2 Total quantity of Milk supplied.	3 Amount paid to Members on 14 days' statement.	Remarks.	
May			Average rate per two litres paid (columns $\frac{3}{2}$) =	Öre. 14·736
June				
July				
August ...			Surplus ascertained on completion of the half-yearly accounts ...	5·400
September ...				
October ...				
Total ...			Total rate for half-year	20·136

CHAPTER IX.

Haslev Andels-Mejeri. Bestyrer (Manager), Mr. P. Jensen.

At the village of Haslev there is a small Dairy where milk of smaller farms is dealt with. It is called Haslev Andels Mejeri.

In the morning milk in separate cans from each farm is brought on carts belonging to the Dairy, 9 carriages and 17 horses being employed for the work. The milk is weighed on the straining machine and the weight of each farmer's milk is recorded by the receiver on a tabular slip of paper separately prepared beforehand for each cart load to facilitate the work, showing thereon the individual numbers of the farms whose milk usually comes on the cart.

The load of each cart is dealt with at a time, whole-milk being weighed and passed into the boiler, and from there into the cream separators. Cream flows out from the boiler into a channel leading to another boiler, where it is heated to 90° Celsius 194° Fahr.), and run on to the cooler, and finally conveyed by a pipe to the receptacle where cream is mixed with 8 % sour-milk and kept over for 15-18 hours for ripening till the following morning, when churning is commenced.

Butter-milk from the churner is run out through a pipe into a separate receptacle kept in the same verandah where cans of fresh milk are emptied. By its side there is another open receptacle in which separated (skim) milk is also kept. Both these receptacles containing butter-milk and skim-milk are side by side and have weighing machines and milk-holders attached to them. Milk of both these kinds is filled in rapidly in the same cans in which fresh milk was brought and sent to the farmers on the same cart in which the whole-milk was brought to the Dairy. Cans are not washed at this Dairy as is done at the Trifolium.

The working of this Dairy is very simple. Cream from whole milk is separated, and the separated milk is sent back at once to the farmers in warm condition. Butter-milk is

sent out to farmers the next day after the butter is churned out of the cream. The following percentages of whole-milk go back to the farmers in –

Butter-milk	...	... 10 %
Skim milk	...	... 80 %

Farmers have to be paid practically for the cream retained in the Dairy.

Approximate payments for whole-milk are made to the farmers once a month, at varying rates, as shown below according to the market price of butter—

When market price of butter per lb. is		The rate for milk per 2 litres is	
1	krone	14	öre.
1·01	„	14⅛	„
1·02	„	14¼	„
0·99	„	13⅞	„
0·98	„	13¾	„

and so on.

The percentage of butter-fat of each farmer's milk is also taken into account and the rate per can of two litres works out from 14 to 16 öre. Farmers are charged 2 öre per litre of butter-milk and skim-milk supplied to them from the Dairy.

Final accounts are made up at the end of each half-year on 1st May and 1st November, when surpluses are divided among the members in proportion to the quantity of milk supplied by each.

This society had 176 members owning about 1,200 cows, and the quantity of milk received daily was from 18,000 to 20,000 lbs. The smallest quantity receivable from a member was 4 lbs., while one of the members sent as much as 800 lbs. daily.

Samples of milk received from the members are taken and the percentage of butter-fat ascertained twice a week on the Gerber apparatus.

The manager of the Dairy was allowed a remuneration of 4,500 krones per annum, with free board and lodgings, out of which he paid 1,400 krones to his assistants (four young men and boys and one girl) and the balance he retained for himself.

The Dairy is worked by a steam engine 14 kraft (horse power), which cost about 10,000 krones. The capital cost of the building is about 26,000 krones. The Dairy keeps 9 carriages and 17 horses for the conveyance of milk from and to the members' houses.

The account of this Dairy for the year ending 30th April 1907 showed the following results :—

	Krones.
Total Income.	217,554
Total Expenses	184,295
Surplus	33,259
Divided among members at 540 krones per 1,000 lbs. milk supplied by them during the year...	32,543
Balance carried to next year ...	716

The income included the following items :—

	Krones.
Balance from last year	1,154
Sales of butter—	
Wholesale, 165,532½ lbs. ...	162,526
Retail, 37,724½ ,, ...	38,137
Sales of milk	14,464
Miscellaneous sales	1,203
Total ...	217,554

The expenses were made up of the following :—

	Krones.
Payment to members for whole-milk	162,765
Cartage of milk	8,764
Coal	1,990
Interest and tax	506
Salaries of staff	4,600
Maintenance	3,506
Miscellaneous	2,164
	184,295

CHAPTER X.

Andels Mejeriet "Tudse Naes" at Udby, Amt Holbaek (Manager, Mr. Chr. Jórgensen).

This Dairy is situated in a small village, where there are about half-a-dozen farm-houses and an electrically driven Flour Mill. Both the Factories are under the same management. The manager lives in the same building in which the Dairy work is done and has a beautiful kitchen and fruit garden around the building. The country around is almost level, with landscapes here and there, and has a pure atmosphere. The whole of the land is under cultivation.

The Dairy has 282 members, from whose farms milk is daily brought on carts belonging to the Dairy. It is weighed on the straining machine, and samples are taken twice a week to test the percentage of cream, which is done in a thin glass tube placed in a small machine called "Lactoscope" (transportable Gerber apparatus). Tubes containing samples of test-milk are placed in the groves provided on the circular lids, which are put inside the machine, and the latter is driven electrically 6,000 revolutions per minute for 30 minutes, in which time the cream comes up on the top of the tube, and its percentage is measured in another small instrument called "Mikrometer."

Milk is then taken into the boiler and heated to 58° Celsius, and the cream separated and re-heated to 85° Celsius and cooled down to 10°. It is collected in a large open semi-circular tinned vat, where 7% butter-milk is added and the whole allowed to stand over for ripening till the following morning, when churning is commenced in a large barrel-shaped wooden (Holstein) churn, which holds about 2,500 kilogrammes of cream, and turns out 1,000 kilogrammes of butter at a time. Out of 2,000 kilogrammes of cream they usually have 750 kilogrammes of butter and 1,250 kilogrammes of butter-milk, the proportion being 37½% butter and 62½% milk in cream. Out of 104 lbs. milk they have usually 3½ lbs. butter, 96 lbs. skim, and 4½ lbs. butter-milk.

The average percentage of cream comes to about 5 per cent. of whole-milk. The balance (95%) is skim-milk, which, together with butter-milk, is returned to the farmers who supply the whole milk, for their household use and for feeding pigs.

Quantities of whole-milk received from each member and of the skim and butter-milk supplied to him are daily recorded in Form I (see page 121) and totalled weekly, each month. The weekly totals of the whole-milk in half-kilogrammes, the percentage of cream, and the cream units with the value in money, are posted in Form II.

Half-yearly account of each member is prepared in Form III showing :—

(1) Weekly totals of whole-milk in half-kilogrammes.
(2) Value of same.
(3) Supplies made to the member.
(4) Balance payable to him or by him.
(5) Fines or penalties for bad milk, etc.

The account of the supplies to members is kept in Form IV under the following heads :—

(1) Butter.
(2) Skim-milk.
(3) Use of mill for crushing corn.
(4) Fodder stuff.
(5) Total value.

The last item "Total value" is posted up in Form III, under the column "Supplies to Member."

From Form II is prepared the valuation summary in Form V, showing :—

(1) Account numbers of members.
(2) Half-kilogrammes of whole-milk.
(3) Cream-units.
(4) Value in money.

From Form V are worked out the average percentage of butter-fat for all milk received during the week and the rate per 100 cream units. And the weekly payment of

the approximate value of whole-milk is made to the members on the following basis :—

	Krones.
1. Weekly price of butter obtained through the Agency (the "Danish Dairies" Association) for say 9,338 lbs. butter at 98 krones per cwt. of 50 kilogrammes ...	9,186·19
2. Price of 775 lbs. butter sold locally, calculated at the same rate of 98 krones per 50 kilogrammes	759 50
3. Value of skim-milk	100·00
	10,045·69
4. Deduct estimated expenses of working the Dairy at 20 öre per 100 half-kilogrammes on 273,227 half kilogrammes of whole-milk dealt with in the week	546·00
Balance	9,499·69

The above balance distributed upon the 1,335,252 units of cream used in the week, gave the rate per 100 units at 71 öre in round figures, at which the value of the cream units in all accounts was worked out and summarised in Table V.

A monthy account is rendered to each member in Form VI, showing the weekly valuation of whole-milk received from him and the charges for supplies made to him.

At the end of each half-year (31st March and 30th September,) the accounts of total receipts from the sales of butter, etc., and of working expenses and charges are made up (see Annexure VII), and the surplus is divided among the members according to the total half-kilogrammes of whole-milk supplied by each during the half-year (see Annexure IX).

Under section 8 of Bye laws of the Association, the highest authority is a general meeting of the members of the Association. All questions are decided by a majority of votes, except in the case of an alteration in the Statutes of the Association, in which case a majority of three-fourths is necessary. All members have an equal right of one vote.

The accounts of the Dairy for the year 1913-14 showed the following results :—

	2nd half. Krones.	1st half. Krones.
Total income	242,581	263,348
Total disbursements ...	198,854	213,312
Surplus ...	43,727	50,036
Divided among members ...	43,383	43,310
Carried to next account ...	344	726

The expenses include the instalments for the repayment of the loan taken for the Dairy building, machinery, etc., and the maintenance and repair of the same.

The total quantity of whole-milk dealt with was 6,403,873 and 5,491,609 pounds during the two half-years, giving daily averages of 35,157 and 30,179 pounds respectively.

I.

Daily account of whole-milk received from, and skim and butter-milk returned to, members.

Date.	Member No. 1.		Member No. 2.		Member No. 3.	
	Whole-milk Received.	Skim Supplied.	Whole-milk Received.	Skim Supplied.	Whole-milk Received.	Skim Supplied.
	½-Kg.	½-Kg.	½-Kg.	½ Kg.	½-Kg.	½ Kg.
1.	347	330				
2.	312	291				
3.	333	310				
4.	314	300				
5.	308	280				
6.	320	300				
7.	536	320				
1st Week.	2,270	...				
1.						
2.						
3.						
4.						
5.						
6.						
7.						
2nd Week.	2,347					
1						
2.						
3.						
4.						
5.						
6.						
7.						
3rd Week.	2,213					
1.						
2.						
3.						
4.						
5.						
6.						
7.						
4th Week.	2 178					
	9,008	8.590 at 1 öre per half kilogramme.				
1.						
2.						
3.						
4.						
5.						
6.						
7.						
5th Week.						
Total ...						

II.

Supply in June Month, 1914

1st Week. *Price per 100 Cream Units 71 öre.*

Number of Member.	Half kilogrammes Whole-milk.	Cream %	Cream-Units.	Value.		Number of Member.	Half kilogrammes Whole-Milk.	Cream %	Cream Units.	Value.	
				Kr.	Öre.					Kr.	Öre.
1	2,270	4·9	11,123	78	97	31					
2						32					
3						33					
4						34					
5						35					
6						36					
7						37					
8						38					
9						39					
10						40					
11						41					
12						42					
13						43					
14						44					
15						45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					
Total	37,390	...	184,217	1307	89	Total	28,747	...	141,336	1003	46

III.

Half-yearly Account of Members.

Member No. 1. *Half-year June 1914.*

Month and Week.	½-Kg. Whole-Milk Supplied by Member.	Value of Milk.	Supplies to Member.	Balance due to Member.	Balance due to Dairy.	
		Kr. Öre.	Kr. Öre.	Kr. Öre.	Kr. Öre.	
1st Month 1 week	2,270	78 97				
2 ,,	2,347	82 49				
3 ,,	2,213	76 20				
4 ,,	2,178	88 21				
5 ,,						
		325 87	116 74	209 13	...	
2nd Month 1 week						
2 ,,						
3 ,,						
4 ,,						
5 ,,						
3rd Month 1 week						
2 ,,						
3 ,,						
4 ,,						
5 ,,						
4th Month 1 week						
2 ,,						
3 ,,						
4 ,,						
5 ,,						
5th Month 1 week						
2 ,,						
3 ,,						
4 ,,						
5 ,,						
6th Month 1 week						
2 ,,						
3 ,,						
4 ,,						
5 ,,						

Total ½-kg. of whole-milk.....

Surplus at.....öre per 50 kilogrammes.....kr.

IV.

Account of Supplies to Farmers.

Supplies in June Month, 1914.

No of Member.	Butter.			½-Kg. Skim-milk at 1 Ore per ½-Kg		Grinding Corn. Use of Wind mill.		Fodder Stuff.		Insurance.		Total.	
	½-Kg	Kr.	Ore.	Kr.	Ó e.	Kr.	Óre.	Kr.	Óre.	Kr.	Ore.	Kr.	Óre.
1	24	24	24	85	90	6	60	...		...		116	74
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

Note.—The total amount given in the last column is posted in the fourth column in Form III.

V.

Summary of total value of whole-milk dealt with during 1st week in June 1914.

(Brought from Table II).

1st week. *June Month.*

Account Nos.	½ Kg. Whole-milk.	Cream Units.	Value.	Deductions.	Balance due to Members.	Balance due to Dairy.
			Kr. Ore.	Kr. Ore.	Kr. Ore.	Kr. Ore.
1— 30	37,390	184,217	1,307 89			
31— 60	28,747	141,336	1,003 46			
61— 90	36,957	179,957	1,277 82			
91—120	25,528	126,787	900 25			
121—150	55,573	268,511	1,906 43			
151—180	25,179	122,101	866 92			
181—210	25,261	125,947	894 21			
211—240	16,565	80,110	568 80			
241—270	17,440	83,938	595 97			
271—300	4,597	22,318	158 47			
Total...	273,227	1,335,252	9,480 22			

(1) Average percentage of butter-fat = 4·9.

This is obtained by dividing the total of column 3 by the total of column 2.

(2) Average rate per 100 units = 71 Öre.

This is worked out by distributing the total amount of column 4 upon the total of column 3.

VI.

Monthly Account rendered to Members.

Settlement for June Month, 1914.

Week.	Dairy Statistics.			Supplies Received from Members.			Value.	
	Butter Price per cwt.	Estimated expenses per 100 ½-Kg. of whole-milk.	Price per 100 Cream Units.	½-Kg. Whole-milk.	Average Cream %	Cream Units.	Kr.	Öre.
1	98 kr.	20 öre.	71 öre.	2,270	4·9	11,123	78	97
2	...	...	...	2,347	...	...	82	49
3	...	...	...	2,213	...	...	76	20
4	...	...	...	2,178	...	...	88	21
5	...	...	...	...	...	...	...	...
			Total ...				325	87

Supplies made by Dairy to Member.	Value.	
	Kr.	Öre.
24 ½-kg. butter at 1·01 kr. per ½-kg.	24	24
8,590 ½-kg. skim-milk at 1 öre ...	85	90
Grinding corn at 32 öre per Td. ...	6	60
Feeding stuff	...	...
Oil-cake crushing at 15 öre per 50 kg.	...	...
Accident Insurance	...	...
Deductions	116	74
Balance due to Member ...	209	13
Balance due to Dairy ...	...	...

VII.

Chief Account for Andelsmejeriet Tudse Naes.
From 1st October 1913 to 29th March 1914..

		Kr.	Øre.	Kr.	Øre.
	INCOME.				
A.	Cash Balance			726	18
B.	Butter sales :—				
	(*a*) 200,607 lbs. to butter dealers	217,867	05		
	(*b*) 15,924 lbs. to members of Union	17,460	73		
	(*c*) 3,158 lbs. to private parties	3,494	01		
				238,821	79
C.	Mill :—				
	Electricity supply			674	86
D.	Other Income :—				
	(*a*) Interest	527	49		
	(*b*) Milk waste	160	00		
	(*c*) Bathing establishment	16	20		
	(*d*) Milk waste	1,571	25		
	(*e*) Entered cows ...	45	00		
	(*f*) Miscellaneous ...	38	80		
				2,358	74
				242,581	57
	EXPENSES.				
A.	Interest and repayment of loan			1,405	00
B.	Disbursement to members :—				
	(*a*) Approximate price paid to members	Kr. 175,102	Øre. 22		
	(*b*) Surplus at 79 øre per 50 kg.	43,383	71		
				218,485	93
C.	Working expenses :—				
	(*a*) Milk transport	8,826	09		
	(*b*) Butter transport... ...	305	20		
	(*c*) Cooper's work	3,220	80		
	(*d*) Coal	2,347	89		
	(*e*) Miscellaneous (see details on next page)	1,833	97		
				16,533	95
	Carried over			236,424	88

	Kr.	Ore.
Brought over ...	236,424	88

D. Salaries:—

	Kr.	Ore.		
(*a*) Dairy manager	3,387	78		
(*b*) President	200	00		
			3,587	78
E. Repairs			1,538	51
F. Miscellaneous			656	30
			242,237	47
Cash Balance ...			344	10
Total			242,581	57

Details of the Miscellaneous Expenses under head C (e):—

	Kr.	Ore.
(*a*) Books and advertising	138	72
(*b*) Parchment, salt and colouring... ...	460	76
(*c*) Metal polisher and cleaning material ...	331	40
(*d*) Packing and other requisites	251	43
(*e*) Daily wages and freight	298	64
(*f*) Well	259	27
(*g*) Water-works tax	93	75
Total ...	1,833	97

Statistics.

Total quantity of whole-milk dealt with in the half-year	5,491,609	lbs.
Quantity of milk used for 1 lb. butter ...	24·91	„
Average price per pound of butter ...	108·89	öre.
Total working expenses per 100 lbs. whole-milk	40·6	„
Conveyance of milk per pound (skim carried back free)	3·98	„
Milk transport per 1,000 lbs. milk ...	106·6	„
Butter transport	5·5	„
Cooper's work	58·6	„
Consumption of coal	42·7	„
Wages of staff	61·6	„

IX.

Final account rendered to Members.

After-payment for half-year { *April-October* / *October-April* } *191* .

	Kr.	Ore.
Supplied.....½-Kg. whole-milk ...		
Surplus.....Ore per 50 kg., which amounts to		
Less debts due to Dairy in half-year amounting to		
Balance due to Member ...		
Balance due to Dairy ...		

X. Model form for yearly account of Dairies prescribed by the Statistical Committee :—

Income.		Öre per lb.	Total.	
			Kr.	Öre.
Cash Balance		...	1	95
A. Sales of butter for export	...153,516·6 lbs.	104·05	159,734	02
„ „ „ to Members	... 6,526 „	105·27	6,869	92
„ „ „ in cash	... 3,445 „	106·94	3,684	08
„ „ „ to Testing Laboratory	... 405·5 „	104·98	425	69
Total	...163,893·1 lbs.			
B. Sales of whole-milk	220 lbs.	6·00	13	20
„ „ cream	4,960 „	30·00	1,488	00
Total	... 5,180 lbs.			
Carried over ...		...	172,216	86

X.—Model form—*continued.*

	Income.		Öre per lb.	Total. Kr.	Öre.
	Brought forward		...	172,216	86
C.	Sales of skim and butter-milk to members	3,412,809 lbs.	1·00	34,128	19
	„ „ „ to others		...	..	..
	Cash sales	103,752 „	1·25	1,296	90
	Total ..	3,516,601 lbs.			
D.	Sales of cheese to members :—				
	Mixed cheese	1,569·8 lbs.	29·38	461	21
	Skim and butter-milk cheese	9,120·9 „	17·44	1,590	68
	Cash sales of mixed cheese ...	2,311·6 „	29·41	688	66
	„ „ „ skim and butter milk cheese ...	1,550·8 „	17·21	783	19
	Sales in parcels, mixed cheese.		...	...	...
	„ „ „ skim and butter-milk cheese ...		...	...	...
	Total ...	17,583·1 lbs.			
E.	Sales of whey	214,328 lbs.	0·25	535	82
	„ waste milk		...	125	00
F.	Miscellaneous income		...	106	25
G.	Interest		...	599	04
	Grand Total ...		...	212,532	10
	Stock at close of year :—				
	793 lbs. whole-milk cheese = 237 kr. 90 öre.		...	...	...
	11,350 „ skim-milk cheese = 2,043 „ 00 „		...	...	...
	„ butter = ...		...	...	...
	„ oil = 50 „ 00 „		...	...	...
	„ coal = ...		...	...	..
	„ miscellaneous		...	...	...
				2330	90
	Stock diminished by ...		...	..	...
	Balance ...		...	214,863	00

K. Materials used for making cheese.

1. For mixed cheese { 8,260 lbs. whole-milk. / 33,092 „ skim and butter-milk.
2. For cheese of separated milk ... 279,748 „ skim and butter-milk.

X.

Portion of Model form appearing on the right side of the account:—

EXPENSES.	Special Sum. Kr.	Special Sum. Öre.	Total. Kr.	Total. Öre.	Hereof chargeable to Cheese-Making. Kr.	Hereof chargeable to Cheese-Making. Ö.
Received 4,060,477 lbs. whole-milk		...	150,688	18	...	...
II. Working expenses:—						
Cartage of milk	5,265	46				
,, for coal, etc.	588	61				
Repairs and renewals of wagons.	712	69				
,, of milk cans	583	15				
			7,149	91	...	...
Manager's salary	4,005	81		...	220	29
Other salaries	235	00				
Fuel	2,007	64			45	00
Ice	120	...				
Packing for butter	2,505	60				
,, ,, cheese		...		...	...	...
Oil and grease	113	30				
Salt, color, rennet, cheese, canvas	380	58		...	70	00
Repairs to buildings	103	92				
,, and renewals of plant ...	641	73			25	00
Articles of cleaning and trimming	172	58				
Office and postage expenses ...	181	67				
Miscellaneous	98	57				
			10,566	40		
I. Other expenses:—						
Interest	1,254	85			90	00
Liquidation of debt	2,860	00				
Surplus to members	39,930	60				
New buildings						
New plant and machinery ...						
Miscellaneous	80	77				
Cash balance carried over ...	1	39				
			44,127	61		
Total ...			212,532	10		

Stock at commencement of year.—			Kr.	Öre.
976 lbs.	Whole-milk cheese at öre	30 =	292	80
5,597 ,,	Skim milk cheese ,,	18 =	1,007	46
,,	Butter ,,	=	–	–
,,	Oil ,,	=	90	09
,,	Coal ,,	=	–	–
	Miscellaneous			
			1,390	26
	Stock increased by		940	64
	Balance ...		214,863	00

CHAPTER XI.

Bacon Trade.

Section 1.—General.

Co-operation among the farmers in this industry in Denmark begins with the breeding of pigs and continues till the manufactured articles (bacon packed, smoked or baked, lard, etc.) are disposed of and accounted for among the co-operators.

Their Co-operative Unions and Societies are as under :—

(1) Svineavls-foreninger (Local Unions for Pig-breeding).

(2) Svineavls centre (Pig-breeding Centres).

(3) Bedommelsesudvalg for Svineavls Centre (Committee of Judges for Pig-breeding Centres).

(4) De Samvirkende Svineavls centre og Svineavls-foreninger (Provincial Association of Pig-breeding Centres and Pig-breeding Unions).

(5) Andels Svineslagterier (Co-operative Bacon Factories).

(6) Andels Svineslagterier Noteringsudvalg (Co-operative Bacon Factories Pricing Committee),

(7) De Samvirkende danske Andels Svineslagterier (The combined Association of Danish Co-operative Bacon Curers).

(8) The Danish Bacon Company Limited, London.

Section 2.—Local Unions for Pig-breeding.

Local Unions (Svineavls-foreninger) have been established in each convenient locality for the joint breeding of pigs and for the promotion of co-operation among the breeders generally. The realization of these objects is attempted by—

(*a*) Providing one or more boars of the genuine large white Yorkshire breed or of the Danish country breed for breeding with swine of the Danish breed belonging to members of the Union;

(*b*) Control over pig-stock and expert advice in regard to breeding and general treatment of pigs.

The work of these Unions is controlled by an Executive Committee elected at a general meeting of the members, this assembly or the committee electing the President of the Union.

The expenses of the Union are met partly by grants from the Government and the balance by the members in proportion to the number of swine served by the Union boar.

The first Union in Denmark was established in 1894, and the total number of such Unions in 1911 was 240.

Section 3.—Svineavls Centre.

To supply the best kind of breeding swine to farmers, some of them have opened what are styled Breeding Centres, where animals of a guaranteed breed can be bought. The Centres are owned by individuals, and prizes for the best herds of animals are given at competitive shows held periodically at appointed places. The recognition of a Centre is given for one year at a time by a Committee of Prize-awarding Judges (Bedómmelsesudvalg), consisting of a President nominated by the Minister of Agriculture and two members elected by the Co-operative Bacon Factory of the district.

In guiding the breeding of pigs, attempts are made for the time being both to develop the country breed (land race), which has a well-nourished large body, rich milk, good form, ability to produce a strong long-living progeny; as also to retain the pure Yorkshire breed by a simple cross between the two races to produce useful animals. This practice is to be persisted on until the Danish country breed, developed by the present breeding arrangements, will be so good as to satisfy the demands which both the agriculturists and the market place upon it. This necessitates Breeding Centres for both the races of pigs.

In accordance with the Danish Law of 8th June 1912, Breeding Centres for pigs are meant to provide herds or collections of domestic as well as agricultural breeding animals of the recognised races and types to be spread all over the country for rational and successful pig-breeding generally.

State-recognised Pig-breeding Centres are placed under the Local Avlscentre Committee nominated by the Co-operative Factories in the district. The committee consists of three members, two of whom are nominated by one or more Factories in the district, while the third member is the Assistant to the State Konsulent (adviser) who directs the pig-breeding operations in the district. This committee controls and supervises the Breeding Centre and proposes its recognition by the Committee of Prize-awarding Judges (Bedommelsesudvalget) for the district.

Control and Experimental Stations for pigs are established at (1) Elsesminde (एलसेमंमिना), near Odense, (2) Bregantved (ब्रायंटविद), near Haslev, and (3) Rodstenseje (गोज़्टेंमाय), near Odder. Pigs bred from the breeding animals in the Centres are brought to these stations in order that their well-being and good and bad points for pork may be observed by a system of feeding and slaughtering controlled and planned by the Experimental Laboratory. Experiments are made with different breeds of pigs fed upon various kinds of food, so as to improve the stock and determine the best food in order to produce the best results.

Every one of the Experimental Stations is placed under an Experimental Council (Forsógsraad) consisting of three members, two of whom are elected by De samvirkende danske Andels Svineslagterier and one by the Experimental Laboratory.

The Danish Government contributes a sum of 25,000 krones annually towards the expenses of the Svineavls Centres, and the Control and Experimental Stations.

In Denmark there were 23 State-recognised Breeding Centres for the Yorkshire breed and 89 for the Danish breed in 1913. With the help of these Breeding Stations, the farmers are ever endeavouring to improve the quality of bacon to meet the requirements of consumers in England.

Section 4.—Provincial Associations.

The Local Unions have combined in forming their Provincial Associations. The provinces of Jutland and Fyn have each a Provincial Association (De samvirkende Svineavls Centre og Svineavls-foreninger i Jylland at Randers, and Faellesledelsen af Svineavls-foreninger og Svineavls centre i Fyns stift at Hjallese). These Associations work for the advancement of Pig-breeding Unions and of Pig-breeding Centres in the province, and to further Co-operation between the Unions and between the Co-operative Bacon Factories.

Those Pig-breeding Local Unions, which have accepted the laws of the Provincial Association, the Owners of Pig Centres and the Co-operative Bacon Factories, can take part in the affairs of the Provincial Association. The Executive Committee of the Provincial Association consists of eight members, four of whom are elected at the annual meeting of the Association and four by the Co-operative Bacon Factories. The Committee chooses its own chairman and vice-chairman.

The Association for Jylland embraces 60 Pig-breeding Centres, and the Association for Fyn has 20 Pig-breeding Unions and 12 Centres.

In the province of Fyn the yearly expenses fall upon the partaking Unions and Centres in proportion to the number of first-class swine served and the number of pigs killed. In Jylland the annual subscriptions are fixed at four krones per Centre and two krones per Union.

Section 5.—Co-operative Bacon-curing Factories (Andels Slagterier).

According to the choice of bacon dealers in England, the factories in Denmark order pigs of certain age with certain weight, and the farmers are required to breed their pigs and supply accordingly.

Those farmers who have large farms and own a large number of pigs, have their own private bacon factories. Some of them also buy pigs from smaller farmers as well, or accept their supplies on certain conditions. There were 22

such private Bacon Factories in Denmark. Most of the small farmers in each district (Amt) have combined in establishing their Co-operative Bacon Factories, where they send their pigs for conversion into bacon, lard, etc. There were 45 Co-operative Bacon Factories in Denmark. The first Co-operative Factory was started at Horsens in the year 1887.

In starting such a factory the members have to sign a guarantee form (see Appendix IV), undertaking to supply all their pigs to the Co-operative Factory for a certain period, and standing as sureties "one for all and all for one," with regard to loans raised for the joint concern.

As soon as the minimum number of pigs required for starting a factory is promised and the guarantee form completed, the capital required for the building and machinery, and for working the factory is obtained on loan from one of the Banks, the rates of interest varying from $3\frac{1}{2}$ to 5 per cent. per annum.

The factory is built in a convenient centre to suit the members, where pigs are brought in carts or by rail and converted into bacon, the owners being paid within a week the approximate value of their pigs.

The produce of the factory is sold by the Managing Director either to customers direct or through Agencies in foreign countries at the best prices obtainable.

The accounts of the factory are closed annually, when the surplus, after meeting the working expenses, is divided among the members in proportion to the weight of pigs supplied by each during the year, a certain portion of the surplus being paid to the senior members of the managing and manufacturing staff.

The approximate value of pigs at which farmers are paid in the first instance by Co-operative Bacon Factories, is calculated at the weekly rates arrived at on the basis of the prices for bacon obtained in the previous week in foreign markets, by the Pricing Committee (Det Andels Svine slagteriers Noteringsudvalg). This committee has been established since 1901 and is annually elected by the Bacon Factories. It consists of one representative from each Province and an expert. They meet every Tuesday and Friday and examine the rates obtained for bacon in various

markets, and fix the rate at which approximate prices are to be paid by the Factories to their members for the pigs supplied during the week. These weekly rates are notified through the Ritzau Bureau and in the agricultural newspapers for the information of all concerned.

The Co-operative Factories are owned by the members, who bind themselves as guarantors for the whole amount spent upon the concern. They are partners of the joint property. The rules and regulations of their Association are given in Appendix III. They meet once a year and elect their Executive Committee, which elects its own chairman and vice-chairman and confirms the election of the Managing Director and other officers of the factory. The work of the factory is conducted under the direction of the Director, who is under the general control of the Executive Committee.

Every pig killed in Denmark for export is inspected by a Veterinary Surgeon employed by the Factory, whose work is controlled by the Veterinary Inspector of the State employed under the Department of Agriculture. Any animal in which the smallest sign of tuberculosis is traced, is kept back from export; it is used locally in Denmark in making soap, etc. In consideration of this control, the State allows the Factories to use the Lür Brand of the Government on their bacon, which mark is a guarantee that the bacon is made from completely sounds animals.

Of the total import of bacon into England, the Danish bacon forms a large proportion and receives the highest prices for its excellent quality, as may be seen from the following figures:—

	Quantity.	Amount.
Of total imports into England, the Danish Bacon was in		
1913	48·1%	51%
And in 1912	50%	54%

The average price of bacon in England in 1913 was 67 öre per lb. for the Danish and 60 öre per lb. for other bacons.

Some of the Bacon Factories sell eggs also on Co-operative lines on behalf of their members, but the accounts are kept separate from the Bacon Factory, and the egg business is treated as a branch of the Union.

Section 6.—Andels Svineslagteri at Haslev.

This Factory had 1,800 members, who send their pigs for conversion into bacon. Pigs were classed under three heads, according to shape of bacon and thickness of fat and belly, too fat or too thin being inferior in quality. The best weight of a pig for the English market was 125 to 140 lbs. Pigs of these weights were allowed one óre per lb. more than the ordinary rates fixed for each. Those below 125 lbs. were considered too small and those above 140 lbs. too big. The following were the prevailing rates for the three classes of pigs in July 1914:—

1st	class paid for at	50	óre	per	lb.
2nd	„ „	49	„	„	
3rd	„ „	48	„	„	

The rates vary weekly according to the notifications of the Pricing Committee published in the weekly paper, *Andelsblad*.

Pigs were bred and brought up by farmers who sent them to the slaughtery, where the whole of the business connected with the curing and sale of bacon, etc., was done.

As pigs were brought into the slaughtery, the farmers were paid an approximate price, one óre per lb. of their weight being retained till the close of the year and paid, together with the surplus found on completion of the year's accounts. The expenses of the Factory, Agencies, etc., were deducted from the sale proceeds, and the surplus was paid rateably to members in proportion to the weight of the pigs supplied by them during the year.

The Union was financed by loans from banks at interest varying from 4½ to 5 per cent. per annum, on the security of the members.

The following is a statement of the accounts of this Factory for the year 1913 :—

Receipts.	Krones.	Krones.	Disbursements.	Krones.	Krones.
Balance from last year.		727	Stock in hand on 1st January 1913 ...		67,164
Sale of Bacon in England.—			Approximate payments to members for 26,101 pigs weighing 3,533,961 lbs.	1,897,019	
(a) Through Danish Bacon Co., London, Bacon of 20,487½ swine, weighing 2,307,888 lbs. at factory & 2,271,444 in England ...	1,466,456		Payment of one öre per lb. held back ...	35,340	
Less freight ...	10,637		Surplus @ 2¾ öre per lb.	97,184	
		1,455,820	Freight and receiving charges	1,751	
(b) In North of England—					2,031,294
			93 too small and too big pigs	3,501	
			208 other animals ...	21,085	
					24,586
			600 other animals ...		7,962
Bacon of 4,068 swine weighing 481,713 lbs. at factory & 472,454 lbs. in England ...	297,711		*Working Expenses.*		
Less freight... ...	1,778		Wages	30,970	
		295,934	Salt and saltpetre ...	6,526	
Sales in Denmark—			Wrappers	9,614	
14 pigs		1,902	Coal, gas, oil, etc. ...	6,493	
			Horses	381	
Sales in Copenhagen—			Repairs and renewals...	2,302	
1,457½ pigs		98,472	Insurance	1,721	
			Written off	251	
Sales in Hasley—			Offices expenses ...	1,384	
207 pigs		17,396	Meetings and audit ...	1,431	
80 pigs condemned by Veterinary, sold for soap-making ...		400	Life Assurance for Staff—		
			Premium ... 5,286		
Miscellaneous sales ...		260,946	Interest on deposits ... 523		
				4,763	
Interest on Reserve Fund...		378	Veterinary Surgeon ...	3,728	
			Contribution to Co-operative Sanatorium ...	230	
Stock in hand on 31st December 1913 ...		77,508	Miscellaneous expenses.	3,868	
			Chargeable to Egg Branch.	73,561 1,488	
					72,073
			Surplus *		6,403
Total ...		2,209,483	Total ...		2,209,483

* NOTE.—Surplus disposed of as under :— Krones.

Payment towards debts...	5,750
Reserve Fund	500
Carried forward to next account ...	153

Balance Sheet.

Assets.	Krones.	Krones.	Liabilities.	Krones.	Krones.
Property Account.			*Members' Account.*		
Original loan raised for slaughtery and plant	144,525		1 öre per lb. held back	35,340	
			2½ öre surplus ...	97,184	
					123,524
Paid off	80,275				
		64,250	Further surplus @ 2½ öre per lb. ...		4,470
Original debt for egg house	9,914				
			Sjællandske Bondestands Sparekasse (Savings Bank)—		
Paid off	9,914				
					
Stock in hand.			Balance on 1st January 1913	8,042	
Cash in hand... ...	1,777				
			Paid off in 1913 ...	3,000	
Salted bacon	65,472				5,042
Offal	12,036		Sparekassen for Grevsk Bregentved		
Salt, saltpetre, coal, wrappers, etc. ...	1,458		Balance on 1st January 1913 ...	77,775	
Eggs	8,700				
		89,443	Paid off in 1913 ...	2,750	
					75,025
Securities Account.					
			C. L. H. London ...		27,412
Share in Danish Bacon Co., Ld., £250 ...		4,530			
			Reserve Fund Account.		
Deposits and Outstandings.			Slaughtery Reserve Fund	14,188	
Hasley Bank... ...	59,940		Danish Bacon Co.'s ditto	22,450	
Savings Bank ...	13,688				36,638
Danish Bacon Co. ...	6,894		Miscellaneous Creditors.		3,250
Agents in Northern England	23,503		Carried forward to next year		153
Danish customers ...	22,265				
		126,291			
Total ...		284,514	Total ...		284,514

Section 7.—De Samvirkende danske Andelsslagteriers Fælleskontor.

The Co-operative Bacon Factories of Denmark have federated together in forming a Central Association whose head-quarters are at Copenhagen. The Association has three representatives from each Factory who constitute the General Assembly and meet once a year about the end of March. The General Assembly elects the Executive Committee of five representatives chosen for two years from the Managing Committees of the Factories, together with two Managing Directors of Factories chosen for one year only.

The Executive Committee then elects its own chairman and conducts the business of the Association. The yearly expenditure is shared by the Factories in proportion to the number of pigs killed; it amounts to one to two öre per animal. The total came to about 20,000 krones at one öre per animal on the 1,969,529 pigs killed during the year 1913.

The business committee which, on behalf of the Executive, decides less important matters, includes the chairman, the vice-chairman and one of the directors.

The Association does the following business on behalf of the Bacon Factories:—

(1) Arranging for cheap transport and insurance of bacon in transit to foreign countries.

(2) Insurance of employés against accidents in the Factories.

(3) Arbitration in cases of disputes.

(4) Prevention of strikes among the Factory workmen.

(5) Advancement of co-operation among the Factories and settlement of new questions with the State Ministers.

By combining together for the purpose of insuring their bacon in transit to foreign countries, the Factories save about 25 per cent. in the cost of insurance, which is effected with a Joint Stock Insurance Company, *viz.*, Allianz Forsikrings Aktie Selskab.

The insurance of workmen of Factories against accidents has been arranged in a similar manner, the men paying three per cent. on their wages, a further three per cent. being paid by the Factories, so that if a man who receives about 16 krones a week meets with a fatal accident, his widow receives a lump sum of 3,000 krones.

To prevent any one Factory from loss through strikes among its workmen, it has been agreed that should a strike occur at any particular Factory, the other Factories should bear a proportion of the loss and give practical assistance by sending a staff immediately to carry on the work at the Factory where such strike might occur.

The Association arranges also the holding of exhibitions of bacon. The Factories are telegraphed to by the manager of the exhibition to forward a side of bacon which would ordinarily be shipped to England in the course of a day or two. The sides are collected in Copenhagen, and judges (bacon merchants) are appointed by the committee, who give marks in accordance with the quality, etc., of the bacon, on the same day as it would likely reach the retailers' hands in England. These exhibitions are, however, solely for the purpose of keeping the managers of the Co-operative Societies up-to-date in the quality of their produce, and also to assist the farmers in producing the right class of bacon pigs. The results are sent out to the manager of each Factory taking part, and any defects which might have occurred in the Factory are commented upon by the judges for the information of the manager. If the pigs do not appear to be up to a good standard a report is asked for from the manager as to the general average stamp of pigs in his neighbourhood, and if it is thought that the farmers are not exercising sufficient care in the breeding of their swine, the expert attached to the Association is requisitioned by the manager of the Factory to pay a visit to the neighbourhood and neighbouring farms for the purpose of helping the farmers to improve their stock.

The following statement exhibits the accounts of the Association for the year 1913:—

Income.	Krones.	Expenses.	Krones.	Krones.
Contribution from Co-operative Bacon Factories at 1 öre per pig killed in 1912 ...	18,717	Meetings of Committee		2,955
		Audit fees		72
		Office Expenses—		
Interest on accumulated funds	1,906	House rent	1,412	
Miscellaneous income ...	350	Salaries	5,795	
		Printing & stationery	712	
		Postages	967	
		Firing & lighting ...	197	
		Telephone & telegrams	1,096	
				10,179
		Miscellaneous expenses	...	738
		Travelling ,, ...	...	507
		Quality Judges ...	...	1,195
		Delegates' meeting ...	...	697
		Contribution to Serum Laboratory	...	2,000
		Contribution for Arbitration Committee ...	...	500
		Address for a leader ...	...	250
		Writing off on plant ...	...	195
		Balance added to property of Association ...	...	1,685
Total ...	20,973	Total ...	...	20,973

Note.—The accumulated funds of the Association amounted to 43,221 krones on 31st December 1913.

Section 8.—Danish Bacon Company, Limited, London.

Though styled as a Limited Company, this is virtually a Co-operative Association of Danish farmers for the sale of their bacon in the London market. The Co-operative Bacon Factories of Holbaek, Horsens, Lolland-Falster, Randers, Roskilde, Faaborg, Odder, Haslev and Hammel are its members, and sell the whole of their bacon through this Association in London.

The Association has an authorized capital of £10,000 divided into 10,000 shares of £1 each, of which only 5,000 shares have been issued and paid up. They have their own stock of bacon and do not therefore need much capital.

Bacon received from Denmark is smoked, cooked or packed and then sold to dealers in London at the ruling rates of the market. The sale proceeds, less freight charges from Denmark to London and a commission of 1½ per cent., are remitted to the Bacon Factories in Denmark. Out of the commission, the expenses of the Association in London are met, and certain percentages are allowed to the Managing Director and his assistant, and the surplus is distributed as under :—

> Half among the members, *i.e.* the Bacon Factories, in proportion to the business done on their behalf during the year.
>
> The other half among the customers who buy their requirements from the Association at least 40 weeks out of the 52 in the year, in proportion to their purchases.

The payment of this rebate to customers carries the principle of co-operation a step further than is usually followed. It treats the customers as well as the producers of bacon as its members, sharing in its surpluses. The Association allows certain percentages of its surplus to its senior managers, and has established a club on its premises for the benefit of its other employés, where clerks and workmen can have their daily meals at nominal rates. The fee for membership in this club was 7d. per week for clerks and

6d. per week for workmen, and the meals were supplied at the following rates:—

Breakfast	... 2d.
Luncheon	... 4d.
Tea	... 4d.

The men when working overtime were allowed supper free of charge. This club is very popular among the men, who during the workmen's strikes in London, never left the work of this Association.

Under the rules and arrangements of this Association the co-operation of all concerned is secured by allowing the members, customers, managers and working staff to share in the surplus profits.

The following tables show the accounts of the Association for the year ending 31st March 1914:—

Balance Sheet.

Assets.	£	s.	d.	Liabilities.	£	s.	d.
Cash in bank and office ...	14,982	5	9	Authorised Capital 10,000 Pref. shares at £1 each £10,000.			
Cash in Denmark, with interest	23,526	13	10				
Accepted bills	18,365	10	2	Paid up capital in 5,000 5% Pref. shares ...	5,000	0	0
Various debtors	93,697	7	6	Due to members ...	1,22,877	11	5
Smoked bacon in stock ...	5,066	8	5	Due to various creditors ...	15,774	7	0
Cost of packing material ...	826	0	5	Reserve fund	606	16	0
Horses and wagons ...	1,318	13	0	Profits made prior to the Association becoming a Co-operative body ...	852	6	11
Office plant	608	11	5				
Insurance fund	303	5	10	Profit and loss account ...	13,997	15	8
Postage stamps	82	0	4				
Unsold bacon carried to next year's account ...	332	0	4				
Total ...	159,108	17	0	Total ...	159,108	17	0

Income.	£	s.	d.	Expenses.	£	s.	d.
Commission at 1½% ...	26,222	19	7	Wages	1,875	16	10
Profits on various goods ...	905	9	0	Postages and telegrams ...	884	0	0
Dividends received from bankrupt customers ...	409	6	3	Bill stamps	574	10	6
Total ...	27,537	14	10	Printing charges	232	6	10
				Rents and rates	416	8	4
Less profits earned before the concern became a Co-operative Association	852	6	11	Income tax	760	14	6
				Insurance and telephone ...	334	4	0
				Bad debts written off ... £1,039 4 4			
				50% paid by Managing Directors ... 519 12 2			
					519	12	2
				Insurance against bankrupt customers	390	0	0
				Electric light and fire ...	59	7	4
				Sundry expenses	927	15	11
				Travelling expenses ...	1,162	14	4
				Danish ,, ...	241	7	10
				Advertising ,, ...	260	8	11
				Interest and discount £ s. d. 1,080 15 8			
				Interest from bank 156 2 1			
					924	13	7
				Law and audit	169	3	2
				Depreciation on office plant	44	6	0
				Total ...	12,687	12	3
				Net profits	13,997	15	8
Total ...	26,685	7	11	Total ...	26,685	7	11

To guard against losses due to bad debts, the Managing Director is held personally responsible for 50 per cent. of such losses. This is a very sound principle.

The business of this Association has been growing rapidly, as may be seen from the following figures of its annual results :—

Business year ending.	October 31st 1907.	October 31st 1908.	October 31st 1909.	October 31st 1910.	October 31st 1911.	March 31st 1912.	March 31st 1913.	March 31st 1914.
	Krones.	Krones.	Krones.	Krones.	Krones.	Krones.	Krones.	Krones.
Turnover	12,716,304	16,061,694	17,209,774	19,268,249	22,769,128	9,293,365	27,676,394	33,013,162
Profits	261,734	335,371	356,410	389,007	456,056	187,096	414,578	501,192
Expenses	137,756	146,164	171,873	187,515	183,438	87,287	239,093	230,922
Net profit...	123,978	189,207	184,537	201,492	272,618	99,809	175,485	270,270
No. of pigs	218,528	306,588	278,770	260,132	343,050	162,868	374,398	440,404
Sale price...	60/3	56/4	63/10	72/6	64/3	68/3	71/10	73/8
Sale credit	27 days	29 days	27 days	23 days	22 days	22 days	22 days	21 days

Section 9.—Summary.

The lines upon which these concerns are conducted are co-operative in the true sense and to the fullest extent, *viz.*:—

Co-operation among producers.
Co-operation among manufacturers.
Co-operation among proprietors and servants.
Co-operation among producers and consumers.

All concerned in the production, sale and consumption of goods co-operate and share in the benefits.

To sum up, the co-operation among the Danish farmers is complete and continuous. They give their best thoughts to the matter and aim always at improvements in the existing conditions. By their high education and general culture, they have been able to achieve these ends. By their arrangements of joint working they effect considerable savings in the cost of production and bring every particle of their raw material to a profitable out-turn, while the quality and quantities of their out-turn have very materially improved and increased with a minimum of labour, time and expense. By their joint sales they obtain the highest prices obtainable for their produce. All these results are highly satisfactory and account for their prosperous condition.

There are three main stages in their co-operation in the bacon industry and trade. The first stage begins with their Local Unions and Provincial Associations, which are always at work towards improvement in the breed of their live-stock, towards maintaining their joint-breeding stations and towards promoting their co-operation generally. In the second stage they have their Co-operative Bacon Factories and a United Association for the common business of all the Bacon Factories in the country; the Factories convert the live-stock into bacon, lard, etc., and arrange for sale, transit, insurance, etc., of their produce. In the third stage some of the Bacon Factories have combined in establishing their houses in foreign countries like England, where they jointly sell their produce at the highest prices obtainable. No middleman is employed to share in their profits. Whatever profits they make are shared amongst the producers and customers, *viz.*, the farmers, the managers and workers of factories and consumers or retailers.

The rapid and successful growth of co-operation in the bacon industry is attributed* to the following causes :—

(1) The widespread practical education of the Danish farmer, supported by the valuable lessons in trade combination which had been taught in the development of the dairying industry.

(2) The thoroughly systematic manner in which a national scheme for the improvement of the quality of pigs of the country has been undertaken and maintained.

(3) The rapidity with which the farmers of the country have adapted their system of farming to the requirements of the Bacon Factories, so as to secure uniformity of supply and uniformity of size and quality.

(4) The public spirit exhibited in all cases by the banking institutions of the country in financing the people's factories, and the co-operation in many instances of the municipal bodies in corporate towns, and of associations of merchants and traders in many towns and villages, with the efforts of the local farmers' societies, to provide the capital necessary to erect and equip these factories.

(5) The whole-hearted fashion in which the Government have assisted the industry by providing constant advice of experts, by assisting the prosecution of inquiries in foreign countries, and, perhaps more than anything else, by advancing subsidies to steamship owners to insure more frequent transit to England.

* Page 13 of the Report on Co-operative Agriculture and Rural conditions in Denmark by the members of a deputation of the Deptt. of Agriculture and Technical Instruction for Ireland, Dublin, 1904.

CHAPTER XII.

Dansk Andels Æggeksport (The Danish Farmers' Co-operative Egg-export Association).

The central office of this Association is in Copenhagen, with branches at Vejle, Odense, Nykobing Rudkóbing, Aalborg, Aarhus, Esbjerg, Ringsted, Nexó.

There are 550 societies with local centres in the whole of Denmark affiliated to this Association, with a total membership of about 45,000 farmers, who supply eggs through the centres.

The Association is under the control of five members forming the Board of Directors, who meet once a month and receive the chairman's report. The directors are elected at a general meeting of the members, the Manager for five years and the other members for two. The Chairman is one of the five members of the Board; he manages the home business connected with the supply of eggs, while the Manager looks after the trade with foreign countries.

The Association has agencies in several cities in England and Germany, who do the business on a commission of one per cent. on the sale proceeds.

Each egg is marked in purple ink with the number allotted to the member who sent in the egg, with the number of the local centre, and with the brand of the Association.

Eggs are packed by the local Unions in returnable wooden boxes which measure about $6' \times 1'\text{-}6'' \times 1'$ deep, in which eggs are placed in cardboard partitions provided with square cells, so that each cell receives one egg. Over each partition a packing of wood-wool is laid, with a layer of straw at the bottom and top of the box, and the top lid is secured by a portion of the cross stregthening bars being swivelled on a screw. When the lid is placed in position

the opposite ends of the strengthening bars are placed in iron loops rising from the side, and the swivel portion is then turned with another loop on the near side, thus fixing the lid firmly in position. No seals or locks are required and instances of pilferage in transit are unknown. The cases when packed are despatched to one of the shipping stations where the box is weighed gross, and again weighed when emptied, and the Society which consigned the box is paid by the weight of the eggs.

At the shipping station eggs are sorted out and graded by hand and eye according to sizes under five grades, giving 14 to 18 lbs. per long hundred of 120 eggs, *viz* :—

1st class	...	...	14 lbs.
2nd „	...	...	15 „
3rd „	...	...	16 „
4th „	...	...	17 „
5th „	...	...	18 „

When each tray is filled with graded eggs it is passed on to the dark-room, where the eggs are subjected to examination over a very strong electric light. Women who usually do this work have an adept eye that detects at once any bad egg on the tray, by the defective shade seen through the egg or eggs when the tray is placed over the light. This process is called candling.

Any eggs found chipped in boxes from local centres are taken out, but no debit is made against the member if the breakage does not exceed two per cent. When, however, bad eggs are found on candling, the matter is taken up with the member concerned. In the first instance he is warned ; if the irregularity is repeated a fine of 5 to 10 krones is inflicted.

If bad eggs are continuously received from a member and the member is found to be working against the interests of the Society, he is excluded from the Association.

After sorting, grading, candling, and branding, eggs are repacked in the wooden boxes as described above and shipped.

The branches send a weekly abstract of their accounts, which is checked and included in the accounts maintained at the head office.

Prices to be paid to members are fixed every Thursday by the head office, according to the state of the markets as found from time to time.

Eggs are sold by the Association at a rate per "long" hundred. The sale price is fixed by the head office. If the agents are unable to realise this rate, they send in offers which are considered at the head office along with quotations and offers received from various quarters. When an agency is unable to clear a certain stock, the stock is transferred to a central city like London, where it is sold at the best price obtainable.

The accounts are closed on 31st December every year, and the profits are divided amongst the local centres according to the value of eggs supplied by each centre during the year. The chairman and the manager also get one-half per cent. on the total turnover, besides their fixed salaries. The annual turn-over amounts to about 51 million krones.

The profits are disposed of among the members in the following manner: Half the profits for the last year are held back in the reserve fund for five years, and the other half, together with the half profits held back five years ago, are divided. New members who have joined since the fifth preceding year do not share in the profits taken from the reserve fund.

When the supply of eggs is larger than the demand from markets, surplus eggs are pickled in lime-water* (chunam), in tanks made of iron or steel, with a layer of cement over the iron or steel, and kept in a cool room from which heat is completely shut out. These eggs are sold as "pickled eggs" at a lower rate. Ordinarily eggs can be kept for seven days in perfect condition, but in winter and autumn they can stand for two or three months.

* The percentages of water and lime are not known. Lime is freely dissolved in water and allowed to settle down, allowing the water to take as much lime as it can absorb.

The following are statements of accounts of the Egg Export Association for the year 1913 :—

Trading Account.

Income.			Expenses.		
Eggs.	Kg.	Kr.	**Eggs.**	Kg.	Kr.
			1. Sales abroad ...	1,006,965	4,606,880
Balance from last year ...	13,797	22,122	2. Sales at Home		
			Sound eggs ...	443,190	
			2nd class offal eggs ...	260,808	788,413
Cost of eggs paid to members in 1913 ...	4,716,089	4,782,123	3. Waste ...	9,747	...
Profits		606,010	4. Balance in stock ...	9,176	14,966
Total ...	4,729,886	5,410,255	Total ...	4,729,886	5,410,255
Average price paid to members = 1 kr. 6·5 öre per kg.			Gross price per kg. = 1 kr. 14 öre.		
Poultry.		Krs.	**Poultry.**		
Opening Balance ...		2,517	Sales		26,666
Paid to members ...		25,941	Stock in hand		1,921
Profit		129			
Total		28,587	Total		28,587

Balance Sheet.

Assets.	Kr.	Liabilities.	Kr.	Kr.
Cash at head office and branches	8,607	Due to centres		20,416
Dues from customers	54,372	Sundry debts		144,051
Dues from Handels Banken	437,470	Reserve Fund and profits to 1-1-13	535,620	
Stock of eggs in hand	225,837	*Less* profits paid to members in 1913—		
Value of buildings	101,190	(*a*) Half profits of 1912 ...	62,698	
		(*b*) Ditto 1907 ...	48,625	
		Balance Reserve Fund and profits to 1912 ...		424,797
		Net profit for 1913		238,210*
Total ...	827,476	Total ...		827,476

*Half this amount was to be credited to the Reserve Fund and the other half, together with—
(1) half the surplus of 1908 lying in the Reserve Fund, and
(2) Interest on Reserve Fund,
were to be distributed among the members in October 1914 when the annual accounts were to be closed as usual.

Profit and Loss Account.

	Kr.		Kr.
Branch expenses ...	287,342	Profit from eggs ..	606,010
Head office expenses ...	57,992	Fines from members ...	980
Organ of the Association...	3,318	Profits on frames of card-boards	57
Egg shows	1,859	Profits from poultry ...	129
Insurance for staff ...	1,620		
Interest on Reserve Fund to be paid to members.	14,894		
Depreciation on buildings.	1,941		
Net profit for 1913 ..	238,210		
Total ...	607,176	Total ...	607,176

Some of the Bacon Factories also do egg business as a part of their concern. To a certain extent they compete with the Egg Export Association. This is undesirable, but the managers of Bacon Factories do the egg business for their own members, who keep poultry as well as pigs on their farms, as it is more convenient for them to do the two classes of business through the same Society. For purposes of co-operation, it would be better if the egg trade were entirely under the Egg Export Association.

The Association has its own organ "Vor Ægeksport" for the information of its members. It is a bi-monthly journal dealing with the egg trade and matters concerning the Association.

Appendix V contains the Bye-laws of this Association.

CHAPTER XIII.

Joint-Purchase of Articles Required for Agriculture and Agricultural Industries.

In almost every district in Denmark facilities are provided by means of which the agricultural requirements in seeds, implements, manures, cattle-food, etc., are placed within the reach of farmers in the best possible condition and at the lowest price. There are a number of local Societies for the joint-purchase of cattle-food, seeds, manures, etc., for agriculturists, and of coal, machinery, etc., for Dairies. Some of them are affiliated to federations which cover a large area of the country and provide for all the local Societies affiliated to them. The oldest Societies are—

(1) Landmands-foreningen i Jylland til Indkób af Kunstig Gódning (Farmers' Union in Jutland for Purchase of Artificial Manures). Established in 1869. Annual turn-over 70,000 krones, 3,400 members.

(2) Landmands-foreningen paa Lolland og Falster til Samlede Indkób, 1870 (Farmers' Union in Lolland and Falster for Joint Purchases at Nakskov). This Union had 950 members subscribing 4 óre per Tónde land (=56,000 square feet) under plough. Yearly sales of cattle-food, manures and land seeds amount to four million pounds, valued at 200,000 krones.

(3) Holbaek Amts Forening, til Indkób af Kunstig Gódning, 1870 (Holbaek District Union for Purchase of Artificial Manures). Annual turnover 100,000 krones. Subscription, 5 óre per Tónde plough-land from ordinary members, 10 krones yearly from Agricultural Unions and Co-operative Dairies. 642 members, with 12 Unions and Dairies.

These and a few other District Unions established at Ringkóbing (1885 and 1886), Fjends Herreds (1885), Thylands (1888), Hjórring (1897), supply agriculturists' requirements in cattle-food, manures or seeds in their respective Provinces or Districts, as their names indicate.

From about the beginning of the present century, the following Central Associations have been established, which cover larger areas and do a much larger amount of business:—

(1) Jysk Andelsselskab for Indkób af Foderstoffer, Aarhus, 1898 (Jutland Co-operative Society for the Purchase of Cattle-food).

(2) Dansk Andels Gódnignsforetning, Aarhus (1901). (The Danish Co-operative Manure Business).

(3) Oernes Andelsselskab for Indkób af Foderstoffer, Copenhagen 1901. (The Islands Co-operative Association for Purchase of Cattle-food).

(4) Fyns Andels-Foderstoffer retning, Svendborg, 1901 (Funens' Co-operative Cattle-food Business).

(5) Lollandske Mejeriers og Andels-haveres Faelles indkób, Nakskov, 1901 (Lolland's Dairies' and Gardeners' Co-operative Purchase Union).

(6) De Danske Mejeriers Faellesindkób og Maskin fabrik, 1901 (The Danish Dairies' Union for Purchases and Machine Factory). Office at Copenhagen and Factory at Kolding.

The head offices of 1 and 3 were interviewed, and the following particulars ascertained from their annual reports and accounts :—

The first-named Society has six branches, *viz.*, at Aalborg, Esbjerg, Vejle, Horsens, Randers and Frederikshavn.

To the Central Associations are affiliated a number of local Societies which are established in different parts of Denmark or of the province after which the Societies are named, and the individual farmers make their purchases through the local Societies, which receive supplies from the Central Depôts.

Each local Society is required to pay a guarantee money at the rate of two krones per cow owned by its members, if the total amount of guarantee money comes to 500 krones or more; if it gives less than this limit, the rate levied is three krones per cow. This guarantee money is kept intact in a safe bank, but the reserve fund mentioned further on gradually becomes the working capital of the Association.

Members have to sign a form guaranteeing to purchase all their requirements from the Association for a term of years, usually five years, which period is renewed from time to time.

In the management of affairs of the Central Association, each local Society has one vote for every 100 or part of 100 members on its rolls.

A representative committee is formed of 35 members in Jutland and 11 to 21 members in Seeland, which includes the Director, the Treasurer and the Managing Committee, consisting of a Chairman, a Vice-Chairman, a Secretary and two members of the representative committee.

When these Societies started their business they had no capital beyond the guarantee money mentioned above. Funds required for the purchase of stores were borrowed from banks (Handelsbanken—the Merchants' Bank, etc.) on interest at one per cent. higher than the bank rate for cash credit. It came usually from five to seven per cent. per annum, according to the state of the money market.

The stores are sold to members as well as to non-members. The former are allowed 30 days' credit, while the latter have to pay cash for all purchases they make from the Society. The latter are not allowed to participate in the profits or rebates mentioned below.

Under the Bye-laws of the Association, half or one-fourth of the profits made in the year are placed in a reserve fund, until the fund grows up to 5 % of the total annual sales, calculated on the average of the last three years, and the other half—together with any excess in the reserve fund over the 5 % of the annual turnover—is divided among the members in proportion to the amount of total purchases made by them during the year.

The accounts of the two Associations visited, for the year ending 31st May 1914, showed the following results :—

	Jutland Association.	Seeland Association.
Total turnover for the year—		
Weight in kilogrammes ...	219,915,269	47,865,280
Amount in kroner	28,666,958	5,641,307
Number of local Societies affiliated	662	106
Number of members...	34 000	4,000
„ „ cows	231,000	36,301
	Kr.	Kr.
Total amount of guarantee money ...	644,202	80,958
Reserve Fund on 31-5-1914 ...	1,140,406	148,206
Profits made in the year	1,636,308	149,255
Expenses and depreciation	844,873	84,860
Net profit...	791,435	64,395
Balance of previous year	3,217	1,754
Total ...	794,652	66,149

Among the stores they sell are the following :—

Grain.—Wheat, barley, oats, maize (मक्की), rye, gram.

Articles made of Grain.—Bran of wheat or of barley, a mixture of bran and refuse jaggery, malt sprouts, rice husks, maize glutan.

Oil-cakes of cotton seed, sunflower seed, rape seed, linseed, hemp seed, earthnut, sesam seed, palm, soya bean, kokus.

Straw of barley and wheat.

Swine-food.—A mixture of maize and barley, flesh and bonemeal.

Most of these stores are purchased locally in Denmark, but the following articles are imported from the countries named below :—

(1). Decorticated cotton-seed cake :—

(*a*) 51 % protein and fat combined from Texas (America) at £167/9 British sterling per ton of 2,240 lbs.

(*b*) 50 to 54 % protein and fat combined from Russia.

(*c*) 43 % protein and fat combined from New Orleans (America).

(2). Maize from America.

(3). Bran from Russia, England and Laplata (South America).

(4). Sunflower seed cake from Russia.

(5). Soya bean cake from England (bean comes from China).

(6). Barley from Russia.

The business of these Associations is yearly increasing, as may be seen from the following figures of their total sales for their first and last years :—

The Jutland Association—

	Food stuff.	Manure.
1898-99 ...	... 11,918,861 Kg.	–
1913-14 ...	... 28,666,958 ,,	–

The Seeland Association—

1901-02 ...	... 12,936,264 Kg.	63,265 Kg.
1913-14 ...	... 45,345,773 ,,	2,519,507 ,,

CHAPTER XIV.

Co-operation in the Supply of Household Goods for Everybody.

For the supply of household goods for every-day requirements, including clothes, boots, etc., for everybody in Denmark, there is a large co operative organization, which supplies the wants of every home, from the cottage to the castle, from the cities and towns to the smallest villages all over the country.

The organization includes a Central Association at the capital (Copenhagen), with its branches in other cities, *viz.*, at Kolding, Aarhus, Randers, Vejle, Odense, Aalborg, Horsens, Esbjerg, Nykobing, Skive and Viby. It has 1,354 Local Societies at villages, towns, etc., affiliated to the Central Association, which deals with the wholesale business, while the stores are retailed to 194,337 members by the Local Societies. The name of the Central Association is Faelles-foreninger for Danmark's Brugs-foreninger.

In Copenhagen and at the branches, the Association has its depôts of stores and factories for the manufacture of chocolates, margarine (a substitute for butter), ropes, soap, tobacco and cigars, and clothes. It buys and imports raw materials and all other articles required for its members, taking every care to secure good quality and at the cheapest rates obtainable.

The whole business is conducted on co-operative lines. Out of the net profits made in a year, 5 per cent. per annum is paid on the share capital, including the reserve fund, and the balance after setting aside the required sum (about 300,000 krones yearly) to the reserve fund, is distributed to the Local Societies in the shape of a rebate on the purchases made by them during the year. Thus the net profits for the year 1913 were utilized as shown below:—

	Krones.
Net profits for 1913	3,048,009
Balance of 1912	35,255
Total available ...	3,083,264

	Krones.
Interest on capital and reserve funds ...	238,513
Rebate to members at 5½ % on their purchases amounting to 40,121,655 krones...	2,206,691*
Depreciation on buildings	500,000
Insurance fund to cover losses in cases of strike, war, fire, etc.	100,000
Balance carried forward to 1914	38,060
Total	3,083,264

The Association started in 1888 originally with a capital of 30,000 krones borrowed from a bank and the share money subscribed by members. Its accumulated funds at the end of the year 1913 were as under :—

	Krones.
1. Share Capital	809,200
2. Reserve fund	4,282,105
3. Funds to meet depreciation on buildings	3,500,000
4. Insurance funds	967,260
Balance unallotted	38,060
Total	9,596,625

	Krones.
Its gross turnover during the year 1913 was	61,999,490
Its expenses	1,350,579
Net profits	3,048,009

The total value of buildings owned by the Association was 4,196,781 krones, while the fund provided to meet depreciation on the same was as high as 3,500,000 krones. These figures show how prosperous this Association is. Every year it is adding to its accumulated funds. Its wonderful achievements are entirely due to the co-operative system upon which the Association has been worked.

* Of this 295,505 krones went to the reserve fund account of members, as per clause 15 of the Articles of Association.

The Local Societies are required to have at least 20 members and must take one share of 100 krones or sign a security bond for the same amount for every 20 or part of 20 members on their list. This sum, if paid in cash, is refundable in case a Society resigns.

The financial risk of members is limited to the amount of their shares only, which is very small indeed.

The Local Associations have their own rules and independent management. They simply join the Central Society as its members and buy their requirements for retail to their members, getting a share of the surplus profits on the basis of the amount of purchases they make from the Central Society.

Members of the Local Associations are required to pay a membership fee of ten krones, and the working capital is borrowed from banks at 4½ per cent. per annum interest. The manager lives on the premises of the Association free of rent, and gets a commission of 4½ to 5 per cent. on the total sales, out of which he defrays the wages of his assistants. The profits, including the rebates received from the Central Society, after meeting the expenses, are divided among their members in proportion to their purchases. The total sales of the Local Societies vary from 40,000 to 120,000 krones annually. Their rules do not allow sales to non-members.

The following are extracts from the Articles of Association of the Central Association (Faelles-foreninger for Danmark's Brugs-foreninger) :—

"3. The object of the Joint Union shall be—

(*a.*) To do any kind of business, buying and manufacturing consumable stores for the members taking great care to get the best articles at the cheapest rates in the market.

(*b.*) To assist the members in business matters and other concerns by publishing a paper, whether independent or in connection with other Co-operative Associations, and by other ways.

"7. The necessary capital needed for the business of the Joint Union shall be raised by issuing bonds of 100 krone each, by creating reserve funds and by taking loans.

"The conditions for membership of the Joint Union and for getting shares of the yearly dividend, shall be as follows:—

"Every member (Local Society) must have at least 20 members and sign an obligation or security bond or take a share for 100 krones. If the number of its members is from 21-40, it must take two obligations or shares. For a membership from 41-60 it must take three shares, and so on.

"*The members of the Joint Union shall not, in any case, be responsible for any possible calamity in the concern of the Union, to a larger extent than that represented by their obligations.*

"If the members desire to pay their obligation in cash, they can do so, and in this case the Union will pay them interest at 5 per cent. per annum, which amount shall represent the members' share of dividend.

"11. Goods sold to members by the Union shall be sold generally at the engross price and must be paid for within 30 days after they are received. If not paid in 30 days' time, the member shall be charged 8 per cent per annum on the amount owing to the Joint Union: and if paid within the period of 30 days, the Union will pay to the member interest at 5 per cent. per annum for the unexpired period.

"Out of the yearly surplus or bonus, shall be kept back an amount equal to 5 per cent. of the value of the buildings belonging to the Joint Union.

"14. The yearly balance sheet shall represent the accounts for the period from the 1st of January to the 31st of December, and must be published before the end of March following. After setting aside the necessary amount for the reserve fund, the rest of the surplus shall be divided among the members in proportion to the trade transacted with the Union.

"Of the amount distributed as surplus to the members, one-third shall be kept back, if needed, for making up the members' reserve fund according to clause 15; and the two-thirds shall go to the members' dividend account.

"If a supplement to the reserve fund be not needed, nothing shall be kept back, and all the surplus will go to the dividend account.

"The amounts standing in the members' reserve fund and in their dividend accounts shall be allowed interest by the Joint Union at 5 per cent. per annum, and this yearly amount of interest shall be added to the dividend account of each member.

"Members can at any time withdraw the full amount standing in their dividend account, but not that standing in the reserve fund. On ceasing, however, to be a member of the Joint Union, two-thirds of the reserve fund shall be payable to a member, the rest (one-third) shall remain as the property of the Joint Union.

"15. As soon as the reserve fund of a member amounts to a figure double that he has paid as security through bonds, the continued supplying of reserve fund will cease, and his account of dividend will thereafter get the full yearly profit.

"Though for every five years the reserve fund must be *revised*, and if members' bonds or business is increased the reserve fund must be raised to accord therewith. But, if bonds or business depreciate in value, there will be no obligation to reduce the reserve fund.

"26. The Managing Board of the Joint Union consists of seven members, who are elected by representatives from different districts for two years at a time. The board elects it own chairman, and divides the business of control among its members. The chairman must often attend at the head office to assure himself of the soundness of the business.

"It must be understood that the term 'members of the Joint Union' means the Local Associations, which are independent institutions with their own elected management and chairman, who employ a man or a woman as distributor, whose salary is paid from a percentage on the business transacted."

It may as well be known that every member (Local Association) has its own reserve fund independent of that belonging to the Central Association.

The following figures represent some of the statistical data concerning the Faelles-foreninger for Danmark's Brugs-foreninger for the year 1913:—

			Krones.
1.	Number of shareholders (Local Societies)		1,359
2.	Number of members belonging to the shareholders..		194,337
3.	Total turn-over		61,999,490
4.	Value of production in Factories of the Association		10,049,689
5.	Expenses		1,350,579
6.	Net profit		3,048,009
7.	Rebate to members		2,206,691
8.	Rebate per cent. on purchases ...		$5\frac{1}{2}$ %
9.	Share capital		809,200
10.	Reserve and renewal funds... ...		4,282,105
11.	Insurance funds		967,260
12.	Real property		4,196,781
13.	Written off on real property ...		3,500,000
14.	Trade stock		6,755,146
15.	Loan on real property		1,316,628
16.	Other loans		2,900,774
17.	Number of employés ...	1,122	
18.	Number of depôts ...	11	
19.	Number of factories ...	12	

CHAPTER XV.

Co-operative Insurance.

Co-operative Insurance Societies have been established in various parts of Denmark, through which insurance of life and property of Agriculturists is effected at a small cost, divided among the co-operators in proportion to their holdings. There are separate Societies for the insurance of different kinds, such as (1) General Insurance of stallion horses, breeding bulls and farm animals including horses, mares, colts and fillies, cows and heifers, pigs and sheep: (2) specific insurance against mouth and foot-rot among cows and heifers; (3) insurance against damage or loss from hail, storms and accidents. Under accidents, insurance is provided not only for property but also for persons of farmers, their wives and labourers, under the Danish Law of 27th May 1908.

The general principle is that the cost of damage or loss involved in such cases is divided among the members of the society to which individual losers belong, in proportion to their belongings insured beforehand in the society. In most of the cases a member has to pay an admission fee to the society based upon the number or value of his animals and property, and an annual premium—a certain percentage on the value of his property as fixed by the society. These contributions not only cover the losses but enable the societies to form reserve funds for emergencies. In some cases the total compensation paid to individual members and other expenses incurred by the society are divided among all the members in proportion to the number or value of their animals or property insured.

The affairs of these Societies are managed by small committees consisting of a President and a Treasurer or Business Manager, with a few members in some cases, all elected by the members.

The following table gives the particulars of some of the typical Societies :—

Name of Society.	Year formed.	No. of Members.	Insurance.		Rates of subscription and premium.	Accumulated Reserve Fund.
			No. of Animals.	Amount in Million Krones.		
1. Stallion Insurance "Danmark"	1896	600	660	1,400,000	1 % on value up to 5,000 kr. 1½ ,, on value over 5,000 kr	
Stallion Insurance "Jylland"	1882	490	585	2,235,000	3½ ,, on value insured	
,, ,, "Sjaelland"	1894	191	321	519,000	2 % ,, ,,	
,, ,, "Fynske"	...	175	187	428,000	2 % ,, ,,	
2. Animal Insurance Society "Kutsos"	1881	1,815		A. 27,000,000 B. 7,000,000	Admission fee 20 öre per animal. No member is allowed to insure for more than 6,000 kr. in the grass for milch cows, 3,000 kr. for horses and 1,500 kr. for sheep or pigs. 33,500 kr. paid for damages in 1912-13.	253,200 kr.
Animal Insurance Society for North Jutland	1852	439 268 350	1st class 2nd ,, 3rd ,,	749,325 203,700 298,200	1 to 3 per cent. on value insured.	
Animal Insurance Society for Funen	1860	3,013	9,071 horses. 2,388 cows.	525,000	Admission fee 10 öre per 100 kr. insured for 1st three years. Premium 2 % for countrymen, 2½ % for townmen	7,500 kr.
Insurance Society for bulls in Funen	1893	147	155	129,250	2 % on value.	
Animal Insurance for Lolland-Falster	1872	5,700	259 horses (stallion). 9,000 horses 600 colts and fillies 9,000 cows.	4,600,000 1,600,000	Ordinary 1½ and 2 % on value. Extraordinary 4 to 5 % ,, Ordinary ... 1 % ,, Extraordinary 1 % ,,	
Insurance of Breeding Unions' Bulls in Seeland	1889	204	233 bulls	166,050	Admission 1 % Subscription 3 % } on value insured.	

Bornholms Animal Insurance Society	1878	1,700	...	2,000,000	Subscription— Horses ... 1·25 % Cows 1·00 „ Goats and pigs ... 2·20 „	
3. Maribo Districts Mutual Insurance Society for mouth and foot-rot	1911	630	17,000 cows & heifers.		Admission 25 öre per animal. Compensation 25 krones per cow or heifer over 2 years old	
Seeland's Dairy Unions Society for providing working staff for mouth and foot-rot ...	1911	4,000	7.000		Compensation 5 krs. per animal plus 40 öre per day per cow over 2 years old. Total expenses divided upon total number of animals insured in the Society.	...
4. *Hail Damage Insurance Societies—*						
Danish "Vermund"	1904	2,380		4,000,000	Admission 4 öre per 100 kr. of value insured. Losses apportioned to members in proportion to amount insured for each	...
North Jutland	1866	16,606		46,500,000	Admission 20 öre per 100 kr. insured	170,000
Small-holders of Jutland ...	1903	1,054		1,200,000	Admission 10 öre per 100 kr. insured. Subscription 5 öre per 100 krones insured ...	2,000
Western Jutland	1881	7,000		18,000,000	Admission 5 öre per 100 kr. insured. Subscription 7 öre per 100 krones insured ...	32,000
Danish Östifter	1872	7,000	45,000 Tde Hartkorn, 225,000 ha.		Admission 4 öre per ha. and 16 öre per Tde. Hartkorn. Compensation paid is divided among members, half in proportion to area and half to Hartkorn	50,000
5. *Storm-damage Insurance Societies—*						
Ostifterne	1899	5,299		34,400,000	Admission 1 öre per 100 krs. insured. Subscription 1 to 3 öre per portion according to nature of buildings	...

Continued.

Name of Society.	Year formed.	No. of members.	Insurance.		Rates of subscription and premium.	Accumulated Reserve Fund.
			No. of Animals.	Amount in Krones.		
"Dansk"	1903	50,000		364,000,000	Subscription— 35 öre } Per portion of 1,000 kr. 70 ,, } according to nature 105 ,, } of buildings.	
6. *Accident Insurance Societies*—						
Dairy and Agricultural Accidents Society :—	1898 1908					Capital 310,500 kr. Damage Reserve 463,000.
1st Branch Dairies ...	...	1,298			Premium on the basis of total quantity of whole-milk received in the Dairies	
2nd Branch Agriculturists whose land and buildings are valued at over 6,000 krs.	..	50,000			Established under the law of 27th May 1908.	
3rd Branch, any one who volunteers and whose property is valued under 6,000 krs. ...	...	14,000				
4th Branch, hand-workers	...	650				
5th Branch, Personal Insurance (man and wife) ...	...	83,000				
Parish Councils' Accident Insurance Society :—	1909	14,000		2,000,000	Admission fees 30,000 kr. Established under the law of 27th May 1908	..
1st Branch for properties valued at over 6,000 kr.						
2nd Branch for properties of 6,000 kr. or thereunder						

Labourers' Accident Insurance Society.—Branch C for Agricultural Labourers	1908	29,000			Premia 500,000 kr. Established under the law of 27th May 1908	...
Danish Agriculturists' Accident Insurance Forbund	1898	1,300			Insurance is effected with Genforsikring i Nordisk, an Accident Insurance Joint Stock Association of 1898 ...	
Accident Insurance Society of Agricultural Labourers in Danish Östifter :—	1898	1,600		138,000 ha. 26,000 Tde. Hartkorn.	Admission 4 öre per ha. and 16 öre per Td. Hartkorn. Half of the amount of compensation paid is apportioned in proportion to area and half to Hartkorn	
(*a*) For members whose chief business is agriculture.						...
(*b*) For those who sub-let thrashing and other machines, etc.						
Danish Dairy Workers' Accident Insurance	1893	493			Annual Premia :— (1) For 100 kr. payable on death ... 0·85 kr. (2) For 1,000 kr. on being invalided 2·20 ,, (3) For 1 kr. daily money 1·20 ,,	30,000 kr.
Mutual Accident Insurance for Labourers of Bacon Factories	1898	800			Accident Insurance Law of 7th January 1898. Factories contribute 8 kr. per labourer annually	14,000 kr.
					Under the Law of 27th May 1908	11,000 kr.
Gardeners' Accident Insurance...	1908	1,610			Recognised by Govt. Established under the law of 29th March 1904 as revised by the law of 1913 which came into force from 1st January 1915 ...	Capital subscribed 100,000 kr. Paid up 500,000 kr.
Andels Anstalten "Tryg"—a Co-operative Life Assurance Society for men, women and children	1904	(For rates of premia see tariff.			Every Policy-holder has one vote. Maximum profit allowed is 5%, the average being 4·75%.	

The Co-operative Insurance Association "Tyrg" had 160,370 Policy-holders with an insurance of over 104 million krones.

Premia Yearly	...	2·8 million krs.
Insurance Fund	...	8·7 ,, ,,
Guaranty Capital ...	...	2·0 ,, ,,
Average profits	...	4¾ per cent.
Total premia up to 1912...		...15·6 million krs.
Total Funds of Society ...		...13·5 ,, ,,

CHAPTER XVI.

Co-operative Bank and Credit Societies in Denmark.

A Co-operative Bank (Den Danske Andels Bank) has been started only from October 1914 at Aarhus, a seaport in the province of Jutland, which though next to Copenhagen, has the Central Bodies of several great Co-operative Unions and Societies of Denmark Like other Co-operative Institutions of Denmark which rank so high to-day, this Bank has a modest beginning, with a capital of 697,500 krones subscribed by 254 members. Among the promoters is Mr. And. Nielsen, who is the President of this Bank and one of the leading spirits in the agricultural co-operation of Denmark. The Director of the Bank is Mr. Jean Wilian Franck, a shrewd young man. It is expected that this Bank will supply a great need in financial requirements of the Co-operative Societies of Denmark.

The object of the Bank is to ultimately do the whole of the financial business in connection with the Co-operative Unions and Societies of Denmark, whose interests the promoters maintain have not in the past been properly served by the Joint Stock Banking Companies. Its first aim is to provide a large Reserve Fund which will enable the Bank to fulfil its object, and thereby further the co-operative movement in the whole country.

The capital has been subscribed and was mostly paid up on 30th June 1914, by the following Co-operative Societies :—

		Krones.
126	Supply Associations	154,000
56	Dairy ,, ...	222,000
32	Banking ,, ...	21,000
25	Fodder Stuff ,, ...	32,500
6	Egg Sales ,, ...	4,000
5	Savings Banks	17,500
3	Bacon Factories	72,000
1	Non-commercial Union	174,500
254	members. Total ...	697,500

The subscriptions are on the following basis:—

(*a*) Banking Associations of not less than five members ... } 100 krones per member.

(*b*) Local Societies } 2 per cent. on their yearly turnover.

(*c*) Central Societies 1 do. do.

The minimum subscription from a single body is 500 krones.

The members have one vote for every 10 Andels (one Andel=a subscription of 500 krones), and have the option of representing themselves at the general meetings by delegates who are allowed one vote only. The surplus profits, after setting aside a suitable sum for the Reserve Fund, are to be divided among the members in proportion to the profits made by the Bank on transactions with each member (including members of the Societies which are members of this Bank) during the year.

The first business year concluded on 31st December 1915 with satisfactory results. New members joined continually, the subscribed capital rose to Kr. 1,600,000 and the balance-sheet showed a balance of about Kr. 9,000,000, while branch offices were established at seven centres, and a staff of 70 superintendents, clerks. etc., was employed in the head office and the branches.

To meet the requirements of agriculturists, loans of two kinds are necessary, viz :—

(1) A long-term loan to enable a farmer to buy a farm, including buildings, live-stock and machinery or implements.

(2) A short-term loan for periods under five years, to enable a farmer to carry on his agricultural work, including the breeding of live-stock.

In Denmark loans of the first kind are generally taken through the Credit Societies, a description of which is given further on. Under the monthly system of payment adopted by the Co-operative Unions for supplies received by Dairies, Bacon Factories, etc., from their members, short-term loans are not much required by the Danish

farmers, who dispose of their farm produce regularly through the Unions, and receive prompt payments to clear their liabilities in due course. Thus the Co-operative Unions of Denmark have practically made Danish farmers independent of money-lenders so far as their working requirements are concerned.

In 1912 there were 168 Short-loan Associations (Forskuds-foreninger) started under the law of March 26th, 1898. They allow working loans to farmers at an interest not exceeding five per cent. per annum, as laid down in the above-mentioned law. To these Associations the Government have originally advanced a loan of five million krones at an annual interest of 3½ per cent. A working loan is meant for buying seed corn, feed-stuffs, fertilizers, renewal of stock and machinery, wages, etc., for working a farm ; it is limited to 3,000 krones and must be repaid within nine months (" A Short Survey of the Danish Agriculture," 1913, page 12).

The interest on loans for short terms in the open market is dependent upon the discount rate fixed by the National Bank of Denmark, but 5 to 6 per cent. per annum may be considered to be the normal rate on such loans in normal times.

Credit Societies.

There are eleven Credit Associations in different parts of Denmark. They are according to the German pattern, " Die Schlesische Landschafts," and work on the Co-operative system.

Farmers* requiring loans combine and form a Credit Society to furnish a joint security on the properties of all borrowers for the total loans taken for a group of borrowers belonging to the Society. Under the system individual borrowers (members) are debtors to the Society, which in its turn is a debtor to the actual lenders. The members are mutually responsible for one another, *i.e.*, one for all and all for one.

Before a land-owner is elected to be a member of a Society, his property is described and appraised either by two appraisers of the Society who are permanently

*The principle of these Farmers' Credit Societies may be extended to Co-operative Building Societies where required, house-owners taking the place of farmers.

engaged for the work in the district or by men who may be appointed by the Government. The valuation given by them forms the basis as to the extent of loan to be given. As a rule in no case can a loan exceed $\frac{3}{5}$ths of the total value of the property. The actual percentage of the total amount of loans on the appraised value of the properties was generally 45 to 50 per cent.

Loans to members are divided into series embracing a number of borrowers. Every member belonging to a series is jointly and severally responsible for all the loans taken by the members under that series only.

The amount of each loan is paid out by the Society in Bonds of such amounts as may be desired, and it rests with the borrower himself to realise the value of the Bonds in the Stock Exchange at the market rate of the day.

The minimum loan in the Islands Diocese Credit Society was 600 krones. Later on, since the Cottagers' Credit Societies have been established, the minimum has been as low as 50 krones.

The members' contributions towards repayment of the debt are :—

(1) An initial payment to the Reserve Fund, usually 2% of the loan, which is made on the grant of the loan within a period of two years.

(2) Half-yearly instalments to cover—

(*a*) Interest at $3\frac{1}{2}$ to $4\frac{1}{2}$ per cent. per annum on the loan.

(*b*) Another contribution of 0·08 to 0·10 per cent. of original loan to the Reserve Fund.

(*c*) A percentage towards reduction of the principal. The estimated time of redemption is generally 60 to 65 years.

The Reserve Fund made up of (1) and (2 *b*) is intended to cover the administrative expenses of the Society and loss if any, and is owned by the members who participate in the same in proportion to the original amount of their loans.

No capital has been raised by the Credit Societies which have been formed by land-owners for borrowing money. They mint their own coins according to their

requirements, in the shape of Treasury Bonds, upon which half-yearly instalments covering interest and liquidation money are paid regularly on fixed days through the Association or a Bank. The Bonds are saleable like Government Securities, not only in Denmark but also in foreign countries like Germany and England, where arrangements have been made to pay the half-yearly instalments as they fall due in the currency of these countries. The Danish Government exercises a healthy control over these Credit Societies, has exempted their Bonds from stamp duty both on first issue and on transfers, and allows certain facilities in the form of process with debtors of the Societies.

In the case of the two Societies established specially for the small farmers (Husmands), the Government give their guarantee for the loans, issue certificates as to encumbrance or otherwise of a member's property at a charge of one krone, which in other cases is 3·90 krones, and appoints and pays one of the two auditors to check their accounts. In virtue of these concessions, the market price of Bonds of these Societies is usually 1 or 2% higher than the price of the other Credit Societies.

One of the great points which have facilitated the work of these Credit Societies is the excellent system of land-records and registration in vogue in Denmark, under which each land-owner's property is so accurately described with full particulars of every encumbrance upon it, that his assets and liabilities could be readily ascertained. It is due to this information that Credit Association Bonds are so largely issued and taken over by capitalists in and out of Denmark.

Besides the eleven Credit Societies metioned above, there are (*a*) Nine Hypotek-foreninger (Mortgage Societies) established since 1895, which grant loans on second mortgages up to a maximum limit of three-fourths of the appraised value of a property; (*b*) A Credit Society for Municipalities, established since 1899. In this Society Municipalities borrow money as a rule, but the rights of Town Municipalities are different to those of country Municipalities. Before the formation of this Society smaller Municipalities had great difficulty in obtaining loans on reasonable conditions in spite of their safe security.

Among the eleven Credit Societies is one for Industrial Estates. It gives loans to such estates within a limit of one-half of their appraised value. The minimum amount of a single loan is 1,000 krones and the maximum 200,000 krones. Its rates of interest are 4 and 5% per annum. On 31st March 1912 it had liabilities of 8,167,233 krones, of which more than three-fourths were at 5% interest. Its Reserve Fund amounted to 784,530 krones = 9·6 per cent. of the liabilities.

As industrial estates are more liable to losses than the pledges of other Societies, it was ruled by the Government that this Society before entering into the business, must have a bank guarantee for 200,000 krones, which, combined with the Reserve Fund, must make up to 10 per cent. of its liabilities, in order to insure the holders of its Bonds against losses. This demand was subsequently waived when the Reserve Fund reached the sum of 500,000 krones.

In this connection the extracts from a note by Mr. M. P. Blem, President of the Credit Society of Estate Bankers in the Danish Islands Diocese Districts, and the note on " The System of Credit Associations in Denmark," embodied in Appendix VI will be interesting, throwing, as they do, a clear light on the subject.

The following table shows the indebtedness of Agricultural and general properties in Denmark as given in "Priorites-gaelden i Danmark pr. i Juli 1909," kindly supplied by the Danish Government Statistical Department at Copenhagen :—

Particulars.	Properties.		Value of Properties in Millions of Krones.						Total amount of Mortgages in Millions of Krones.
			Land and Buildings.		Live-stock and Machinery.		Total.		
	No.	Percentage.	Amount.	%	Amount.	%	Amount.	%	
I. Agricultural Properties.									
(*a.*) Mortgaged ...	161,899		2,256·96		610·90		2,867·86		1,417·00
(*b.*) Unmortgaged...	26,230		364·19		77·80		441·99		...
Total ...	188,129		2,621·15		688·70		3,309·86		1,417·00
II. General Properties.									
1. In the Metropolis.									
(*a.*) Mortgaged ...	15,675		1,324·4		31·3		1,355·7		1,005·0
(*b.*) Unmortgaged...	2,781	15·1	363·0	21·5	8·1		371·1	21·5	...
Total ...	18,456		1,687·4		39·4		1,726·8		1,005·0
2. Provincial Towns.									
(*a.*) Mortgaged ...	50,881		785·0		47·2		832·2		509·7
(*b.*) Unmortgaged...	13,487	21·0	191·3	19·6	15·7		207·0	19·9	...
Total ...	64,368		976·3		62·9		1,039·2		509·7
3. Rural Districts.									
(*a.*) Mortgaged ...	246,711		2,824·5		666·5		3,491·0		1,778·0
(*b.*) Unmortgaged...	63,050	20·4	588·9		93·2		682·1		...
Total ...	309,761		3,413·4		759·7		4,173·1		1,778·0
4. Total General Properties.									
(*a.*) Mortgaged ...	313,267		4,933·9		745·0		5,678·9		3,292·7
(*b.*) Unmortgaged ...	79,318	20·2	1,143·2	18·8	117·0		1,260·2	18·2	...
Total ...	392,585		6,077·1		862·0		6,939·1		3,292·7

The total amount of mortgages in agricultural properties came to 1,417,006,000 krones, which gives the following percentages :—

(1) Upon the total value of land and buildings mortgaged (2,256,963,000 krones)	62·7 %
(2) Upon the total value of land and buildings mortgaged and unmortgaged (2,621,156,000 krones)	54·1 %
(3) Upon the total value of whole property mortgaged (2,867,867,000 krones) ...	49·4 %
(4) Upon the total value including unmortgaged (3,309,862,000 krones) ..	42·8 %

CHAPTER XVII.

System of Education in Denmark and other Scandinavian Countries.

Section 1.—Primary and Secondary General Education.

The education of children began at the age of four years, when it was optional with the parents to send their children to kindergarten classes, where children were entertained with amusing lessons in drill, music and sundry tasks, with models and various kinds of attractive objects, which served as a sort of play as well as went largely towards steadying their hands and eyes for work in after-life, and imparted valuable lessons in discipline and morals which contributed largely towards the moulding and formation of their character.

From the age of seven till the age of fourteen, a child must go to school. This was the compulsory period for national education. Compulsory education ceased at the age of 14 if it had come up to the required standard, if not, the child must continue. In State or Municipal Schools, the education was given free, as also books and other material. In private schools where children of the middle and upper classes of the people went, certain fees were charged. Parents had the option of educating their children either at private schools or at home, provided that on examination before the Local School Commission, such children proved themselves equally advanced as the children of a like age at the State Schools.

Free Schools were provided by the State in sufficient numbers and in large masonry buildings in convenient places all over the country. In Copenhagen alone there were 40 Free (Commune) Schools, each of which accommodated as many as 2,000 children. In the small town of Elsinore, with a population of 14,000 persons, there were five large double-storied masonry buildings provided for

the Town (Communale) School for boys and girls, one of the buildings being set apart exclusively as a gymnasium, which was richly furnished with various kinds of apparatusses for physical exercises.

In villages 89 per cent. of the children in Denmark and 90·7 per cent. in Sweden received instruction at the State Schools, while in the Danish towns the percentage was 70 and in Copenhagen 77; in Stockholm it was 75·2 and in Swedish towns 94·2. The remaining children attended private schools.

The standard of education was much the same in the free State schools as in the private schools where fees were levied. But the parents of well-to-do classes preferred the latter for social reasons, as also for the extra courses provided in certain subjects, especially in foreign languages.

Of late years many towns had instituted secondary schools, in which either no fees were demanded or fees were only payable by the pupils in the highest class, or only by certain pupils in each class.

The public schools were under the authority of the Government, the Church, and the Commune or Parish, but of these three the last had the greatest interest, which was continually growing. Each Parish was, as a rule, divided into several school districts connected with one or several schools. The School Department of the Commune was—

(1) In the country and small towns, directed by a Parish Council.

(2) In bigger towns, directed by the Town Council.

The more particular management, however, was in the hands of the School Commission, consisting in towns of the minister of the parish and members chosen, half by the Parish Meeting and half by the Town Council, and in the country districts by the Commission consisting of a minimum of 8 and a maximum of 20 members. In the Capital and most of the towns, the management and certain duties of inspection were entrusted to the Head Master. The management authority, however, varied in the different communes.

In Copenhagen and in the deaneries there existed Boards of Education. In Copenhagen this board consisted of the

high bailiff, a mayor and a dean. In other places it consisted of the head magistrate, the dean of the district and a third member chosen by the full council. These boards had the entire supervision of the public schools, which were periodically visited by the dean to ascertain the extent of their efficiency.

The Church and School Department of the Government had the general supervision of State education. It laid down the system which was to be followed, prescribed what salaries were to be paid to the teachers and under what circumstances they might be dismissed, and interpreted the provisions of the Code of Education as might seem, expedient according to the circumstances of particular localities. This department was advised by a practical educationalist. In certain cases, however, the department accepted as final the advice of the bishops, who had authority over public education and the teachers concerned therein. The department received annual reports from the School Board as to the condition of the schools and also from the bishops and deans after their visits.

The State or Municipal Schools had two main divisions *viz* :—

The Primary Classes from the age of 6 to 11.

The Secondary Classes from the age of 12 to 14.

They had generally eight classes, many of which had several divisions according to the number of pupils. Besides these, they had five help classes for children found weak or dull. These were separated from the more intelligent ones and were given special instruction, which involved additional expense on appliances and teaching.

The number of children in a class in Denmark varied from 36 to 40 in normal classes and from 16 to 25 in the help classes, which were started in Denmark about the year 1906 and had proved useful.

In Sweden the number of pupils per teacher must not exceed 60 in the country and 40 in towns. In the country districts there were many types of schools such as :—

(1) Two sections each with two classes at the same time, instructed by the same teacher, or every section instructed three days a week.

(2) Six classes instructed by the same teacher, two of them three days a week and four of them three days a week in rotation.

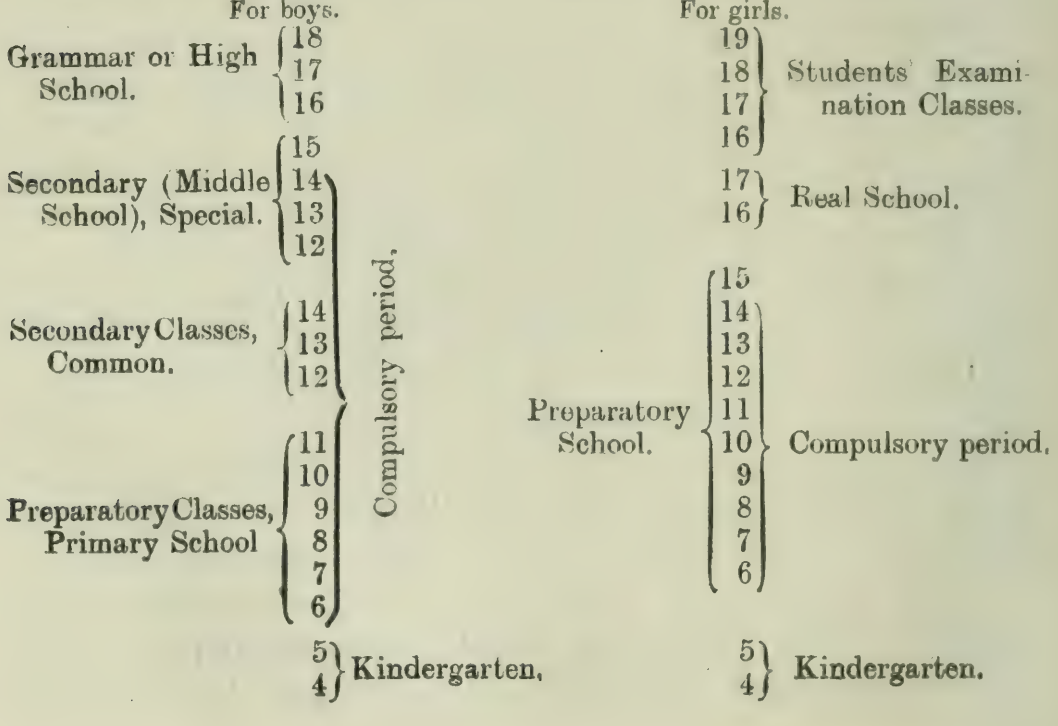
(3) Four classes at two stations instructed by the same teacher, etc., etc.

In the private institutions the schools were divided as under :—

4— 5	years	of age	... Kindergarten.
6—11	,,	,,	... Preparatory Classes.
12—14	,,	,,	... Secondary or Middle School, common.
12—15	,,	,,	... Secondary or Middle School, special, for employment in the Post Office, Telegraph Department, Trade, etc.
16—18	,,	,,	... Grammar or High School (Real or Gymnasie Klasse).

For girls the Preparatory Classes embraced the period from the age of 6 to the age of 15, and the 16th and 17th years were spent in the Real (High) school or the 16th to 19th years in the Students' Classes.

The following trees show the divisions of schools in Denmark, the figures representing the age of children :—



In Sweden the school-going age was 6 to 18 years, *viz:*—

3 years in Preparatory Classes.
8 ,, in Primary and Middle Schools.
11 ,, in full School-course.
3 ,, in Seminarium, Normal School.
1 ,, ,, ,, ,, optional afterwards.

Pupils going up for clerical (office) work had to pass the Real Klasse Examination at the age of 15 or thereafter.

The subjects taught in the Municipal or State Schools in Copenhagen were :—

1. Religion—Christendom.
2. Danish language.
3. Writing.
4. Arithmetic.
5. Faculty of observation and knowledge of native land—for the two lowest classes only.
6. History.
7. Geography.
8. Natural History.
9. Natural Science.
10. German Language.
11. Singing.
12. Gymnastics.
13. Book-keeping.
14. Drawing.
15. Sloyd.
16. Mechanics—manual work.

} For boys.

13. Needle-work.
14. House-work.

} For girls.

At Elsinor the English language was taught in addition to the above.

In private schools a few extra subjects were taught, *viz.*, mathematics and foreign languages, such as the English, German, French and Swedish, generally.

Hour-plan for Municipal Schools in Copenhagen.
Boys.

Class.	Religion.	Danish.	Writing.	Arithmetic.	Faculty of observation and knowledge of native land.	History.	Geography.	Natural History.	Natural Science.	German.	Book-keeping.	Singing.	Drawing.	Gymnastics.	Sloyd (Home arts.)	Total hours per week.	
1	2	10	3	5	2	...	...	...	...	...	...	...	...	2	...	24	
2	2	9	3	5	3	2	...	...	...	...	...	1	...	2	...	27	
3	3	9	3	5		2	2	1	...	...	...	1	2	2	...	30	
4	3	9	3	4		2	2	2	...	...	...	1	2	2	...	30	
5	3	8	2	4		2	2	2	...	...	...	1	2	4 (2)	(2)	30	
6	2	7	2	4		2	2	2	2	...	...	1	2	4 (2)	(2)	30	
7	2	6	1	4		2	1	1	2	4	...	1	2	4 (2)	(2)	30	
Final.	2	5	...	4		2	1	...	2	5	2	...	4	3	...	30	
	19	63	17	35	5	14	10	8	6	9	2	6	14	23 (17)	(6)	231	

Girls.

Class.	Religion.	Danish.	Writing.	Arithmetic.	Faculty of observation and knowledge of native land.	History.	Geography.	Natural History.	Natural Science	German.	Singing.	Gymnastics.	Needle-work.	House-work.	Total hours per week.		
1	2	9	3	4	2	...	...	...	...	...	...	...	4	...	24		
2	2	8	2	5	3	2	...	...	...	...	1	...	4	...	27		
3	3	8	2	5		2	2	1	...	...	1	2	4	...	30		
4	3	8	2	4		2	2	2	...	...	1	2	4	...	30		
5	3	7	2	4		2	2	2	...	...	1	3	4	...	30		
6	2	7	2	4		2	2	2	1	...	1	3	4	...	30		
7	2	6	...	4		2	1	1	2	...	1	3	4	4	30		
Final	2	5	...	2		2	1	...	2	6	1	3	6	...	30		
	19	58	13	32	5	14	10	8	5	6	7	16	34	4	231		

Hour-plan for the Helsingór (Elsinore) Town (Municipal) School Hours per Week.

	Class.	Common time for boys and girls.												Total common time.	Special for boys.		Special for girls.		Total for boys.	Total for girls.
		Religion.	Danish.	Writing.	Arithmetic.	History.	Geography.	Intuitive Instruction.	Natural Science.	Singing.	English.	German.	Drawing.		Gymnastics.	Sloyd.	Gymnastics.	Manual work.		
Lower School ...	1	2/2	8	3	5	...	...	4/2	...	1	...	...	...	20	2	...	2	2	22	24
	2	4/2	8	3	6	2/2	2/2	...	1	1	...	...	1	24	2	...	2	2	26	28
	3	2	8	3	6	2	2	...	1	1	...	...	1	26	2	...	2	4	28	32
	4	2	8	3	6	2	2	...	2	1	...	...	1	27	2	...	2	4	29	33
Classes with ordinary course	5	3	8	3	4	2	2	...	3	1	...	...	2	28	2	4	2	4	34	34
	6	3	8	2	4	3	2	...	3	1	...	...	2	28	2	4	2	4	34	34
	7	2	8	2	4	3	3	...	3	1	...	...	2	28	2	4	2	4	34	34
Classes with extended course ...	V	3	7	2	4	3	2	...	4	1	3	...	1	30	2	2	2	4	34	36
	VI	3	6	1	4	2	2	...	4	1	3	3	1	30	2	2	2	4	34	36
	VII	2	6	1	4	3	2	...	4	1	3	3	1	30	2	2	2	4	34	36
Half-yearly class division from 1st October to 31st March ...	...	2/2	7	3	4	...	...	...	...	...	...	...	...	15	...	...	...	...	...	...

In the State Schools in Christiania (Norway) foreign languages, *viz.*, German, English and French were not taught, and instead of mathematics, they had arithmetic only, but they had in addition carpentry for boys and chemistry both for girls and boys. Moreover, they had optional Continuation Schools for youths 15 to 20 years of age, where foreign languages, book-keeping, advanced arithmetic and geometry were taught.

The working hours varied in the different schools. In Copenhagen 24 and 27 hours, respectively, per week were devoted to the two lowest classes and 30 hours to the upper classes for boys and girls alike. At the Elsinore Town School, 22 hours were allotted for the lowest class and 34 hours for the highest class for boys, and 24 and 36 hours respectively, for girls. The hours for the intervening classes were between the figures for the lowest and the highest classes in both the places. The various communes were allowed to regulate their times of school-attendance in accordance with the local conditions. The rule was, however, that every class must receive instruction for forty-one school weeks averaging at least eighteen hours per week. This was exclusive of the time occupied in gymnastics, needlework, etc. In the towns at least 21 hours' instruction must be given per week, exclusive of the extra subjects, and of drawing and cookery.

Farmers' children were allowed to remain half the day at home to learn farm-work, but the other half must be at school.

Owing to the necessities of the agricultural work, it was the custom in some towns to arrange that the older classes should attend on more days in the winter than in the summer when field work was in progress, whilst for the younger children who were not employed in the fields, this order of attendance was reversed.

As the public became more convinced of the necessity of education, year by year the average non-attendance at school was lessened. The chief reasons of this non-attendance were the pecuniary advantage to parents that resulted from the labour of the children in factories in the city, and in field-work on the land. Under the laws of 1873 and 1901, however, the employment of children in factories had

been limited to the extent that they were not allowed to undertake such work until they had reached the age of thirteen. Also the Home department, upon application from the Town Councils, had power to enforce additional regulations as to this matter.

Making allowance for absences caused by illness, the non-attendance rate in the country school was 5 per cent., of the school days. In the towns it was from 1 to 2 per cent., and in the capital no more than ½ per cent.

Teachers were allowed great latitude as regards the exact methods of imparting knowledge, a point upon which no general rules were laid down. The teachers did not favour any particular stereotyped method of imparting information; they trusted to their own individuality and that of their pupils. The weak point of such a system was its lack of uniformity; also the teaching was apt to become too sketchy and conversational, not leaving enough to the effort of the pupil's mind.

Children did not have the advantage of as much home-training and instruction as was formerly the case either in the towns or in the country districts, although, speaking generally, more interest was taken in school-work in the rural districts.

Corporal punishment was rarer than it used to be, and on the whole the relations between teacher and pupil were more cordial than in former days.

The schools were well equipped with various kinds of diagrams, models of astronomical bodies, specimens of economic products, natural history, etc.

Once or twice a week, the children were taken out by the teacher or teacheress to fields in the country, to public gardens or to public museums, where their faculties of observation were allowed to play freely, and lessons were taught from the natural objects seen there.

In horticulture, instruction was given to all children. Cleverest lads who had no garden of their own, were allowed plots of land in the school gardens and to take away the vegetables they grew there.

Every school was provided with at least one large hall for boys and one for girls, fitted up with various appara-

tuses for physical exercises. Sweden was the home for gymnastic exercises of Europe. Denmark very closely followed the Swedish system, and the school children of both sexes took the same exercises, some of which involved difficult fetes. Girls often performed them more efficiently than boys. At the word of command they rushed out and carried out the orders all at once. In the gymnasia children wore special costumes and shoes. 45 minutes per day on four days in the week were specially allotted to gymnastic exercises for each class. In the summer the children were taken out in charge of a teacher for swimming twice a week.

After each lesson in the schools, the children were allowed 10-15 minutes relaxation in the open. At Silkeborg the boys and girls jointly played the game of langbold between 11 and 12 noon.

The girls in the highest school-classes worked one day per week in the kitchen. What they cooked they ate themselves and then cleaned every thing, so that the kitchen looked tidy. In some of the schools, as for instance in Göteborg Fruntimmers foreningens Flickskola (Ladies' Union School), the 7th class girls went through a course of house-keeping for 12-13 weeks in the autumn.

The house-work for girls was divided under three heads, *viz*:—

(1) Cooking and washing up.

(2) Sewing.

(3) Washing, ironing, etc., of linen.

Practical instruction under all these heads was given to girls in the 7th or the final class of the compulsory period in the Municipal Schools in Copenhagen.

Singing was taught in all the schools. Every one of the teachers and teacheresses knew music and had to give practical lessons to the children of his or her class. The teacher or teacheress took a violin or some other instrument and sang a song, while the pupils joined him or her in singing. The demonstrations held in the writer's presence in the several schools, showed that the children were well up in their work, and they all enjoyed this healthy exercise of their lungs. Even children of the II

class (8 years old) sang their songs independently without much aid from the teacher.

In all the schools visited in Scandinavia, the children (even those of the poorer people) appeared perfectly clean and in elegant garments. They looked quite at home—free, fearless and happy. Girls generally looked prettier and more intelligent than the boys.

Boys of the secondary classes spoke English fairly well, but naturally their pronunciation and accent were more of their mother tongue than of English.*

The teaching in the schools was practical—cramming was avoided to a very large extent. The subject of the faculty of observation (intuitive instruction) received special attention. And children in their ordinary class lessons were made to think and make their own observations on the various points arising from their lesson. They were not allowed merely to learn what the words in the book meant, but by the process of questioning and cross-questioning, the children were made to think why it was so and why it was not so. This system of teaching has very great merits and imparts knowledge of a solid, sound and lasting nature. Their great advantage lay in the fact that all the subjects of their courses were taught through the medium of their mother tongue and not through any foreign language.†

The most remarkable feature in Denmark, as in all European countries, was that the instruction was imparted to the children through the medium of their mother tongue, which occupied a prominent place in the list of subjects taught. In Primary as well as Secondary Schools, the mother tongue was a compulsory subject. Foreign languages were learnt chiefly for conducting business with foreign countries. And this was the reason why even learned persons on the continent spoke English with their

* Before going to Europe my impression was that Indian pupils were wanting in the proper pronunciation of the English language, but since I have heard the English as spoken by the educated classes on the continent of Europe, I think that the Indian youth is very much better, inasmuch as he takes greater pains in learning the intricacies of the English language and of its accent.

† The practice of teaching *Indian* children subjects like arithmetic, history, geography, science, etc., through the medium of the English language, which is not their mother tongue, is unnatural and throws a vast amount of extra work on the children, which breaks down their constitution for life.

native accent and their native pronunciation of letters like r, and ch, which sound like غ and خ of the Arabic and Persian characters.

In all the Scandinavian countries religion came first in the list of subjects in all classes. This is as it should be. In Folkehojskoler of Denmark special attention was paid to this subject. The most valuable treasure of man is to know God and himself. "Make every man a servant of God and master of his task," said Bishop Grundtvig in one of his school songs.

Great attention was paid to the formation of character to discipline, to observation of etiquette in private and in public places.

As the children arrived at the school, they were marshalled by one of the teachers and marched like orderly troops in lines of two into the school. They marched out similarly when leaving the school.

Some of the schools in Denmark, as, for instance, the Municipal School at Elsinore, had adopted the co-education system, under which boys and girls sat together in the same room in each class or section of a class throughout the school. In the towns this was allowed in the lower classes only and in the capital but rarely.

As a result of the practical instruction given in the Scandinavian schools, young lads and lasses turned out of them were well equipped to meet the practical requirements of life. They were quite fit to take up their business in life and make an honourable living directly they left their school.

Whenever a birthday of a girl occurred, it was celebrated in her class in the following manner: The national Danish flag (white cross on red cloth) was put up in the class, the girl was seated at the top of the class and a song of her choice was sung by the whole class.

All pupils and students of both sexes wore a distinguishing peak cap or uniform of their educational institution.

In several of the large communes prizes were given to those children, on their leaving the school, who had made the most attendances and been the best behaved. In the country districts there were examinations in spring and autumn, but in most of the towns such examinations were held only once a year.

The communes furnished books, etc., to be used in the schools, but poor children were also supplied with these for home use. In the larger towns the schools were well supplied with all necessaries, but in many of the communes much parsimony was shown in this respect. In the capital and several other cities, the communes furnished libraries both for the teachers and for the pupils, but in the rural parts there were few of these. They were, however, to increase in the future, as the Government had voted a subsidy for the support of such libraries.

Public Libraries. At Copenhagen there was the Royal Library (Konglige Bibliotek) with a palatial building, a large reading room with separate tables for each reader. It possessed a million volumes and was quite free to any one who cared to go and read there and take notes.

The Public Library at Aarhus was remarkable for its liberal practice of sending out books free of postage to any one in Denmark.

The rate of tuition fees charged in private schools varied considerably. They are given below for some of the principal schools :—

Classes.	Copenhagen De Forenede Skoler for Boys.			Copenhagen N. Zahles Skole for Girls.				Frediks-havns Private Real Skole for Boys and Girls.
	1st Brother.	2nd Brother.	3rd Brother.	Classes.	1st Sister.	2nd Sister.	3rd Sister.	Per month.
I. *Preparatory Classes*	Kr.	Kr.	Kr.		Kr.	Kr.	Kr.	Kr.
1st Class ...	12	10	8	1st Class ...	10	8	6	5·50
2nd ,, ...	14	11	9	2nd ,, ...	12	10	8	6·66
3rd ,, ...	16	12	10	3rd ,, ...	13	11	9	8·33
4th ,, ...	18	13	11	4th ,, ...	15	12	10	8·33
5th ,, ...	20	14	12	5th ,, ...	17	13	11	10·00
				6th ,, ...	18	14	12	
II. *Middle School.*				7th ,, ...	18	15	13	
I Class ...	21	15	13	8th ,, ...	20	16	14	
II ,, ...	22	16	14	9th ,, ...	20	16	14	
III ,, ...	23	17	15	10th ,, ...	20	18	16	
IV ,, ...	23	18	16	11th ,, ...	20	18	16	
Real Klassen.	23	18	16					
I Gymnasie Klasse...	24	20	18	Gymnasie Klasse.	24	20	18	
II ,, ...	25	20	18					
III ,, ...	25	20	18					

Fourth and additional children of the same parents were allowed free in both the schools of Copenhagen.

In the Göteborg Ladies' Union School, the tuition fees levied from the girls were 25 krones per term or 50 krones per year, and in the Private School for boys (Högre Reallaroverket Göteborg), the boys paid about 20 krones per term to the school and the same to the State, but poor pupils paid only 11 krones to the school.

In Christiania (Norway), a graduated scale of monthly fees from 5 krones for the 1st class to 25 krones for the 12th (High School) class was levied for ten months in the year.

In the Seminarium and Normal School for girls in Stockholm, the tuition fees per term were as under :—

	Krs.
Preparatory Classes—	
1st class	35
2nd ,, ...	35
3rd ,, ...	50
Primary and Middle School—	
1st class	55
2nd ,, ...	65
3rd ,, ...	70
4th ,, ...	75
5th ,, ...	80
6th ,, ...	80
7th ,, ...	90
8th ,, ...	90

There were two terms in a year.

The rates of fees charged by Folkehöj-skoler in Denmark varied from 36 to 43 krones per month. They covered food, lodging, tuition, medical attendance and lighting, the details being somewhat as under :—

Food and lodging ...	22 to 25 krones per month.
Tuition	10 to 14 ,, ,, ,,
Medical attendance ...	1 to 1 ,, ,, ,,
Miscellaneous	3 to 3 ,, ,, ,,
Total ...	36 to 43

The rates of salaries of teachers and teacheresses in Public Schools were as follows :—

(1) *Copenhagen* (Denmark)

	Krones per annum.
Gentlemen Teachers	1,600 to 3,600
Lady Teachers ...	1,600 to 2,600

(2) *Elsinore* (Denmark)—

Head Master (Inspector)	3,200 to 4,200
Gentlemen Teachers	1,600 to 3,000
Lady Teachers ...	1,500 to 2,000

(3) *Christiania* (Norway)—

Head Master ...	3,200 to 4,900
Gentlemen Teachers	1,600 to 3,200
Lady Teachers ...	1,100 to 1,950

(4) *Höne-foss* (Norway)—

Gentlemen Teachers	1,500 to 2,500
Lady Teachers ...	900 to 1,600

(5) *Seminarium and Normal-School, Stockholm* (Sweden)—

Rector	7,500 to 8,000
Rectoress	3,500 plus 750 for quarters.
Gentlemen Teachers	4,500 to 6,500
Lady Teachers ...	2,100 to 3,500

(6) *Götebory* (Sweden), *Högre Real-laroverket*—

1st Grade Teachers ...	6,000 to 7,000	from the State.
	700 to 1,000	,, Town.
2nd ,, ,, ...	3,000 to 5,000	,, State.
	450 to 700	,, Town.

In the town of Elsinore there were the following educational and technical institutions :—

(1) The Municipal School for boys and girls of 6-14 years of age.

(2) A Grammar (Secondary) School for advanced pupils.

(3) A Technical school for apprentices and young workmen of the ship-building works, Elsinore.

The Technical School was held at night to impart lessons to apprentices when off their work. The school had been provided by the leading men of the town, and its expenses were met from the following sources :—

(1) State aid.
(2) Contribution from the Municipality.
(3) Fees from those who could afford to pay.
(4) Subscriptions from the people.

Those of the pupils who could not afford to pay the fees were admitted free. There were over 300 pupils attending this school in 1911.

It had an engineering class where grown up students were taught mechanical and electrical engineering. The ordinary classes were for drawing, carpentry, masonry, etc.

It had a special staff of four art painters, who chemically tested the quality (durability) of colours before they were used for painting portraits, scenes, etc. In the whole of Denmark this was the only institution for this kind of work. Oberstloytnant (Colonel) F. D. Volkersen, Forstander (Principal) of the school, kindly took the writer round the school and showed him the several departments of the institution. Among the various apparatuses used was one for the geographical explanation of the perspective drawing, which the Forstander had himself invented.

The ship-building works at Elsinore built ships of 5,500 tonnage or less, mostly for their own country. The works belonged to a joint-stock company which employed from 800 to 1,200 men. The wages of an average skilled workman varied from 37 to 50 óre=4 to 6½ annas per hour. Apprentice boys were started on 8 óre, which was raised to 16 óre per hour in five years, under an agreement executed at the time of engagement. After completion of apprenticeship, they had to remain for one or two years on the last rate before they could get an increase.

The expenses of the schools, where compulsory education was given free, were borne partly by the Town Councils and partly by the State. At Elsinore (Denmark) the minimum rates of salaries of teachers were paid by the town and the incremental sums, which fell due to the teachers after intervals of four years' service, were defrayed by the State, together with the pensions on their retirement.

In Norway two-thirds of the expenses on such schools were borne by the Town Councils and one-third by the State; the incremental sums of salaries of teachers were, however, defrayed in the reverse proportions, *viz.*:—

One-third by the Towns and
Two-thirds by the State.

In Sweden the State contributions were very much larger. For instance in the High (Real) School at Göteborg, the salaries of the teachers were defrayed by the State and the Town in the proportions shown below :—

	1st Grade Teachers.	2nd Grade Teachers.
By the State,	6,000 to 7,000 krones.	3,000 to 5,000 krones.
By the Town,	700 to 1,000 ,,	450 to 700 ,,

The Seminarium and Normal School for Girls in Stockholm was maintained entirely by the State, which contributed 100,000 krones annually, besides the fees levied from the pupils.

The Private Schools received grants both from the Town Councils (Commune) and the State, or managed their affairs entirely with the fees levied from the pupils. The Folkehöjskoler in Denmark generally received grants from the State. In Christiania, the two oldest and best managed private schools did not receive any grant from the State or the Commune. In Sweden all High Schools for girls were private, receiving State grants, except the Seminarium and Normal School at Stockholm, which, as already stated, was maintained entirely by the State.

The following figures give an interesting account of the population of some of the towns visited in the Scandinavian countries, with the annual income of their Municipalities and the grants they made towards the expenses of their schools :—

Town.	Population.	Municipal.		Cost per child.
		Income.	School grant.	
		Kr.	Kr.	Kr.
Elsinore (Denmark) ...	14,000	566,796	147,975	50
Hasle-Frerslev (Denmark)	4,509	140,000	22,177	...
Hónefoss (Norway) ...	2,800	146,840	53,584	71
Voss (Norway)... ...	7,900	91,163	24,770	...

All girls' schools in Sweden were private schools aided by the State and the local bodies, with the exception of the Girls' Normal School at Stockholm, which was a Government Institution for the training of lady teachers, and as such it was maintained mostly at the expense of the Government. It received an annual grant of 100,000 krones from the State and about 30,000 krones in fees from the pupils and students.

Besides the State and Private Schools for generel education, there were the following schools for the instruction of agriculturists in Denmark outside Copenhagen and neighbourhood :—

24	Agricultural, Dairy and Garden Schools.
28	Folkehöjskoler, with agricultural instruction.
47	,, for general instruction.
11	Husholdningskoler.
110	

The writer visited the following schools on the dates given, and is greatly indebted to the ladies and gentlemen named in each institution and to Mrs. Jenny Velander, M.A., Richtor Training College at Solhem Skara, Sweden, for the valuable information supplied by her.

I. State Schools.—*Denmark.*

Helsingór (Elsinore) Kobstads Communale Skole, 18th August 1911. Mr. Thorbjornsen, Inspector; Mr. H. Sonne Holm, teacher.

Silkeborg Commune Skole, 1st September 1911. Overlaerer, Mr. A. H. N. Kirkeskov.

Kóbenhavns Kommune Skole, Tietgensgade, 23rd September 1911. Frk Elisabeth Protorius, Skole-inspector.

Norway.

Möllergatens Skole, Christiania, 7th September 1911. Overlaerer, Mr, R. F. Ringdal.

Sweden.

Högre Real Lärorverket, Göteborg, 4th September 1911. Director Mr. E. Hallgren.

Högre Lärarinne-Seminarium och Normal skolan for Flickor, Stockholm, 15th September 1911. Raktor, Mr. O. Josephsen and Bitradande före-standarinnan Hildur Djurberg.

II. Private Schools.

Frederikshavns (Denmark) Private Real Skole, for boys, 2nd September 1911. Mr. A. Jensen, Skolens Bestyrer, and Frk. E. Fleischer, a teacheress.

Fruntimmers foreningens Flick Skola (Ladies' Union School), Göteborg, Sweden, 4th September 1911. Frk. Gerda Gillblad, English teacheress.

De Forenede Skoler, Köbenhavn (Denmark). The Union School at Copenhagen for boys, 21st September 1911. Mr. H. P. Hansen, Skolens Bestyrer

N. Zähles Skole, Copenhagen (Denmark) for girls, 21st September 1911. Frk. E. Blandt, English teacheress.

Olaf Bergs Pigeskole (Girls' School), Christiania, Norway, 7th September 1911. Director, Mr. J. K. Berle.

Aars og Voss Latin og Real Skole, Christiania, 7th September 1911. Skolebestyrerne, Messrs. J. Aars and P. Voss.

Hónefos Folkeskole (Norway), 8th September 1911.

Elsinore Teknisk Skole, 22nd August 1911. Oberstloytnant (Colonel) F. D. Volkersen, Forstander.

Regensen, the Students' Home, Copenhagen. Vice-Provst, Mr. S. Skoube, justitsraad.

Frediksborg Höjskole, 26th August 1911.

Silkeborg Husholdning Skole, 1st September 1911. Frk. Frida Lund.

Den Udvidede Folkehojskole i askov, July 1914. Mr. Carl P. O. Christiansen, teacher.

Indre Missions Höjskole med Haandvaerkerafdeling i Haslev, August 1914. Forstander, Mr. P. C. Davidsen.

Stockholms Högskola, 16th September 1911. Prorektor Professor, G. de Geer.

Stockholms Kongl: Tikniska Högskolans, 16th September 1911.

Landboskolen at Lyngby, 23rd September 1911.

Folkehojskole at Roskilde, 30th August 1911.

Den Kongelige Veterinaer og Landbohöjskole, Copenhagen August 1914.

Section 2.—Agricultural Education and Training.

Practical Training.—Practical training in agriculture was almost completely left to private initiative. Children of small farmers got it at home from their relations or by working on a salary for others. Owners of larger farms, or people in other professions desiring to give their sons a training in agriculture, usually sent them to well-known expert owners or renters of large farms, where they generally spent about three years, participating in all sorts of work, often a year on each kind of farm. If an apprentice boarded with the family, a fee of a couple of hundred krones was usually paid, especially for the first year; but if such a demand was not made, the apprentice might obtain a salary of a couple of hundred krones annually.

The Royal Agricultural Society of Denmark had organised an apprentice system, under which apprentices served three years on farms in different parts of the country, spending one year on each farm. They took part in all kinds of labour, and their training was controlled by the Society, which required every apprentice to send in his diary annually for inspection. The apprentices came under the Servants' Act and obtained a salary of 150 to 250 krones per annum, with concessions for board and lodging. The apprenticeships were specialized in draining, irrigation, cultivation of root-crops, dairying, etc. Lately the Government had commenced subsidising practical training in small-lot cultivation and in the side-lines of agriculture, spending 5,000 krones annually under the law of May 8th 1898.

Theoretical Instruction in Agriculture.—The modern practical training in agriculture included sometimes literary guidance or lectures as a means of instilling knowledge on a comprehensive scale, but this was practical in Denmark only in winter evenings. As a

majority of the practical farmers did not possess theoretical knowledge of agriculture, it was provided partly by direct aid of the Government, and partly by subsidies towards experiments, demonstration, and lectures, which were often arranged as short courses. This work was carried out by State Counsellors, of whom there were more than 100 employed by the Government, the Royal Agricultural Society, the Local Agricultural Societies, and the Heath Cultivation Society.

Small-holders (Husmaend) were taken out on excursions under the guidance and aid of Government to take practical lessons from ideal farms in different parts of the country. But it was generally acknowledged that the assistance thus given was fully utilized only when the farmers had previouly acquired a certain amount of theoretical knowledge. To supply this want they had established an increasing number of Private Agricultural Schools.

These schools were usually located in the country and gave exclusively theoretical instruction in the form of lectures on agriculture in general or in special branches thereof. These schools were subsidized by the Government under the laws of April 12th 1892 and January 17th 1908 and included—

Agricultural Schools proper.
Dairy Schools.
Horticultural Schools.
Schools for Women in Domestic Economy.
Peoples' High Schools.

The amount of the Government subsidy depended upon the amount of the expenses incurred on the school-buildings, teachers, and school materials; and did not, without a special sanction, exceed 3,000 krones per annum per school. To be eligible for this subsidy a school must have existed at least two years and have had an average of at least ten students during those years. To assist poor students Government granted them a monthly subsidy of about 20 krones each.

The number of Peoples' High Schools receiving Government aid was 80 during the year 1910-1911, and the total number of male students at these and the agricultural

schools was 4,945 and of female students 3,148. The Government subsidy amounted that year to 489,200 krones, of which 187,000 krones were given to the schools and 278,700 krones to students.

Besides these schools, there were others which were not recognised by the Government. In the Classenske Agricultural School at Naesgaard, both practice and theory of agriculture were taught in a course of 17 months. Some schools gave short courses of one to four weeks besides the regular courses. At several schools there were special courses lasting about a month for Cow-testing Association Secretaries (Control Assistants), who assisted farmers in the testing of the rentability of individual cows. These courses received considerable subventions from the Government, and so did the two specially authorised Dairy Schools, where post-graduate theoretical courses of eight months in butter and cheese-making were given to male and female students.

The Royal Veterinary and Agricultural College.—This College has been established in Copenhagen as a State Institution according to the law of March 8th 1856, and provided a higher education for farmers, gardeners, foresters, veterinarians, and surveyors. The agricultural instruction comprised a general course of 20 months and four extension courses of 20 months each.

The General Course.—A special preparatory examination was held to matriculate students for this course, but any one might join it as an extraordinary attendant, follow the instruction and appear in the examination. The chief privilege accorded to regular students was that they alone had a chance for scholarships at the College and the right to appear in the examination at the end of one of the four extension courses. Usually one-fourth of the total number of the students secured free instruction and of these half got the full scholarship of 20 to 30 krones each per month.

The instruction in this course comprised lectures and examination in the following branches:—

Physics and Meteorology.
Chemistry and knowledge of soils.
Botany.

Zoology and Agricultural Zoology.
Anatomy.
Animal Husbandry.
Mechanics.
Soil Culture.
Cultivation of farm-crops.
Dairying.
Agricultural Book-keeping.
General Agricultural and Plant Pathology.

In the first and second terms, there were about 38 hours per week for laboratory practice in chemistry, exercises in botany, surveying and drawing, besides various botanical excursions. In the third term, 11-12 hours; and in the fourth term, 5-6 hours per week were devoted to practice in agricultural chemistry, in the several branches of agriculture and in stock-judging.

After the first two terms, the students had to pass the first part of the examination in the month of June. They then spent a full month in practical exercises in land surveying and levelling and took the second part of the examination in April of the following year. There were 20 marks, 9 for the first and 11 for the second part of the examination.

The Extension Courses.—These courses had been organised to qualify students as specialists or leaders in experiment, or as counsellors, instructors, etc., for whom there was much demand in the country. The four courses were respectively for—

(1) Fundamental Sciences.
(2) Science of Agriculture.
(3) Animal Husbandry.
(4) Dairying.

They were arranged so as to include allied subjects with each of the four main branches.

The instruction was given mainly as a guide for self-application and as exercises adapted for the development of independent judgment. All the four courses commenced every alternate year in September and closed with an

examination 20 months later in March or April. In order to be eligible for the examination after these courses, where the students had access to scholarships of 50 krones per month, it was required that they should pass the Matriculation Examination for the General Course and obtain the first character in that examination.

The higher agricultural education had produced excellent results from these extension courses; but as the demands of agriculture had not been fully satisfied by the existing provisions, plans were under consideration for a further development of the system.

The minimum salaries of the Professors at the Veterinary and Agricultural College at Copenhagen were at a uniform rate of 3,200 krones per annum, with increments according to the length of service of 300 to 2,400 krones per annum, and a special allowance of 444·44 to 800 krones per annum.

The maximum pay, with all the allowances, was 6044·44 krones per annum. The Professors on the maximum pay had 23 to 35 years' service. The College had a staff of 22 Professors as under :—

2	Professors	of Veterinary Science at 6044·44 & 5533·33 krones.
2	„	in Forestry at 6044·44 krones.
1	„	in Physics „ „ „
1	„	in Chemistry at „ „
3	„	in Agriculture at 5022·22 & 4000·00 krones.
2	„	in Domestic Animal Husbandry at 6044·44 krones.
1	„	in Zoology at 6044·44 krones.
2	„	in Botany at 4511·11 krones.
1	„	in Land Measuring at 5533·33 krones.
1	„	in Anatomy at 5022·22 krones.
1	„	in Field cultivation, Chemistry and knowledge of sorts at 5022·22 krones.
1	„	in Farmakologe at 4511·11 krones.
1	„	in Plant Pathology at 4511·11 krones.
1	„	in Economic Gardening at 4511·11 krones.
1	„	in Pathological Anatomy at 4298·14 krones.
1	„	in Animal Physiology at 4000·00 krones.
22		at 116,920·30 krones per annum, an average of 5,315 krs.

(*Vide* pages 839-40 of Budget Estimates of Denmark for 1914-15).

Ladeland Agricultural and Dairy School.—This school comprised a square of handsome buildings with a farm of about fifty acres. The educational establishment was financed by a limited company which just paid its way with the fees levied from the pupils and a small subsidy from the State. The pupils numbered about 180 in the winter and about 30 in the summer. Some of them were young women who were trained to be milk-testers. The fees levied amounted to about 40 krones per month, which covered board and lodging, the only extras being a small sum for light and heating :—

There were two courses, viz :—

(1) Agricultural course which occupied five months.

(2) Dairy-work which extended to a period of 28 months.

The school had a chemical laboratory where investigations were made of the constituents of milk, manures and feeding stuffs. Even skim-milk was analysed to ascertain what proportion of butter-fat was not removed by the separator. Usually no more than $\frac{1}{10}$ per cent. ought to be left after the milk was passed through the separator.

In the Bacteriological class-room, water, milk and milk-products were chemically investigated, lectures being demonstrated with practical experiments made in test-tubes with bacteria which developed in milk and water and in certain cross-cultures of the same.

In the farm attached to the school a number of cows were kept, with one fine bull of the Red-Danish breed. Milk from these cows was used in making butter, with churns driven by an engine. Here practical training was given in both agriculture and dairy-work.

The Ringsted Housemen's School.—There was a Husmandskole or School for Housemen at Ringsted, to train small-holders in a way that they might be successful at their business. It was founded in 1903 and had accommodation for 200 men and women. During the first seven years it had instructed about 5,000 pupils.

The school was originally allowed a State grant of 60,000 krones. It received also a donation of 50,000 krones

from a private person, and in addition other persons, farmers and townsfolk interested in the work, had guaranteed a further loan of 15,000 krones.

It had the usual summer and winter sessions. The fees from pupils came to 40 krones a month for instruction, board and lodging, the pupils bringing in their own bed-linen.

The lowest age at which pupils were admitted was 18 years; above this there was no limit. There were no examinations—a wholesome rule which attracted persons of even old age, who were glad of the opportunity to learn something at a college, without going through the farce of an examination and humiliation if they did not master petty details, which at times are of very little practical use. Examinations with their resultant system of cramming checked the growth of education and generally broke down the constitution of young men eager to obtain a pass certificate.

The pupils at the institution were instructed, among other subjects, in the theory and practice of agriculture, gardening, poultry and rabbit-keeping, the care of cattle, the relative values and action of manures, and, in the case of women, in sewing, house-keeping, and home-nursing.

For physical training they had a splendid gymnasium where exercises were daily taken by all pupils.

Section 3.—Household Schools for Young Ladies.

Husholdningsskoler are meant for young girls. They are in some places called "Skole og Hjem for Unge Piger"—school and home for young girls. Girls 16 years old and above are taken in these schools. The course of instruction included cooking, sewing, washing of linen, ironing, etc. It ran up to a period of five months. The subjects were changed weekly. The pupils had to work in the kitchen for one week, then they went to the sewing work for the next week, and then to the washing, ironing, etc., of linen for the third week, and so on until the five months were over.

The pupils had to pay 55 krones per month for instruction, board and lodging, and had to bring their own bedding, linen, and clothing, and to pay for the washing of the

latter, which came to about 2·50 krones a month. There were 40 pupils in the Silkeborg Husholdnings Skole og Hjem in September 1911.

The girls after the training either married and managed their own homes, or took up some service.

The food for the pupils was daily cooked in the school by the pupils and served in a general dining-room. They had a general sitting-room, where they spent their leisure hours. In summer they usually prepared a large stock of jams, syrups, and other preserves for use in the winter. Among the preserved fruits were strawberries, apples, gooseberries, cherries, impehl; and among the vegetables were beans, peas, cauliflowers, carrots, turnips, etc. These were steam-boiled and bottled with water and salt in air-tight bottles sealed at the mouth.

Their sewing work included the making of blouses, table-cloths, handkerchiefs, with embroidery of various sorts. The head mistress, Fróken Frida Lund, and her sister were kind enough to take the writer through the school and home.

Section 4.—Folkehóskoler—Peoples' High School.

These schools were intended to impart general knowledge to grown-up persons above the age of 17 years. Instruction was given in a practical manner, mostly through lectures, and the subjects taught included the history, literature and language of their own country, the ancient chronicles and sagas, mythology, the history of the world, political economy, psychology, physics, chemistry, anatomy, physiology, sanitation, religion, and other subjects of general interest; physical training, singing, drawing, arithmetic and sewing for ladies.

The course ran through a period of two years. The summer-term was for ladies only, for three months, from 1st May to 31st July. The winter-term was for six months, from November to April, both for young men and girls.

The schools were a private concern of the head master generally. They were aided and controlled by the State. The expenses were met from the fees levied from the pupils and from the grant allowed by the State. The proprietors were allowed to retain any small profits made after meeting the salaries of teachers and other expenses.

These were residential schools and provided suitable accommodation for the pupils, who were required to bring their own bed-linen and covering (blankets and quilts). The fees levied from the pupils were about 36 krones per month for the summer-term and 50 krones per month for the winter-term. They included board and lodging and medical fees. Washing was paid for in addition.

They did not send pupils to the University, neither did they hold examinations, or give any certificates. The pupils came to these schools for the sake of knowledge only, as they found time from their work in the fields, workshops, etc. The schools were closed from August to October, as that is the time for gathering the field harvest.

Their chief object was to educate and instruct in general knowledge. They paid more attention to general ethical education than to any particular line, to elevate the heart and soul of the pupils and to form true character. The Danish history and literature occupied a prominent part in their work.

The Folkehöjskole at Askov received an annual contribution of 30,000 krones from the State and about 100,000 krones annually in fees from the pupils, who numbered about 100 in the summer and about 300 in the winter-term. They employed 17 teachers and teacheresses on salaries varying from 3,000 to 4,000 krones per annum, the rates being alike both for gentlemen and lady teachers. Their dining hall had accommodation for 150 pupils. Pupils in excess of this number had to take their meals in private *Pensions* paid for by the school out of the fees levied from the pupils.

On Sundays they held Folke-meetings, which were attended by large numbers of persons from the surrounding villages. They held interesting discussions on various subjects.

The following were the meal hours at the Askov School:—

Morgen Mad	7 a.m.
Fro kost	10 „
Dinner (midday)	12 noon.
Kaffe	3 p.m.
Aften-Mad	7 „

The following tables show the school plan for the summer and winter-terms at the Askov High School :—

Time-table for Ladies' School in Summer (1914).

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8-9	Sociology.		Geography.		Knowledge of Nature.	
9-10	GYMNASTICS.					
10-11	Danish.	Calculations.	Danish.	Calculations.	Danish.	Calculations.
11-12	History of Literature.		Knowledge of Nature.		World's History.	
	DINNER.					
1-30 to 2-30 *a* ...	Drawing.	Handwork.	Drawing.	Handwork.	Drawing.	Handwork.
1-30 to 2-30 *b* ...	Handwork.	Drawing.	Handwork.	Drawing.	Handwork.	Drawing.
2-30 to 3	SINGING PRACTICE.					
9-15 to 4-15	Reciting.		Hygeine.		Reciting.	Danish.
4-30 to 5-45	HANDWORK.					
6-7	DISCOURSE.					

Sermon in the Free Congregational Church on Sunday from 9-30 A.M. Discourse in People's meeting—Sunday afternoon 5-30.

Winter-term Time-table for first year for Men Students.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8- 9	History of Mathematics.		Natural History.		Hygeine.	
9-10	Calculations, Solution of problems		Geography.	Calculations, Solution of problems		Geography.
10-30 to 11-30 ...	History of Physics.				Historical Discourse.	
11-30 to 12-30 ...	GYMNASTICS.					
12-30 to 2	Conversation in World's History.	Drawing.	Conversation in World's History.	Drawing.		Conversation in Sociology.
3-30 to 4	SINGING.					
4-5	Sociology.		English, German.	Industrial History.		English. German.
5-6	Conversation in Scandinavian History.	Danish.		Conversation in Scandinavian History	Danish.	
6-7	Historical Discourse.		History of Literature.		World's History.	

Winter-term Time-table for another year for Men Students.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8-9	Biology.		History of Languages.		Applied Mathematics.	
9-10	GYMNASTICS.					
10-30 to 11-30... ...	History of Physics.				Historical Discourse.	
11-30 to 12-30 ...	Geography.		Algebra.		Danish.	
12-30 to 2	Drawing and Laboratory Practice.			Conversation in Scandinavian History.		Drawing and Laboratory Work.
3-30 to 4	SINGING.					
4-5	World's Literature.	World's Liter. or Religious History.	English German.	Sociology.		English German.
5 6	Danish.	Conversation in World's History.	Psychology.	Danish.	Conversation in World's History.	Conversation in Sociology.
6-7	Historical Discourse.		History of Literature.		World's History.	

Discourse every Sunday afternoon at five o'clock by teachers of the school.

The Folkehöjskole was founded by the late Bishop Grundtvig. When in 1834 Frederick IV. started Advisory Councils, the Danes had no practice in the art of advising their rulers. To remedy this defect Grundtvig proposed that schools should be founded "for our young citizens where the culture and the education which we desire, both for our own State Council and its electors, might be carefully provided."

Poet as well as reformer, Grundtvig laid down that "the young were to be taught in the schools to look upon the community to which they belonged as a wonderful creation for the good of all, where all positions might be equally honourable and happy when once they were looked upon as mutually indispensable, and when experience had shown that true human enjoyment was equally consistent with them all.

Instruction was to be given by word of mouth. In his younger days Grundtvig had spent seven long years in rendering the ancient sagas and chronicles into modern Danish in the hope of rousing the enthusiasm of his countrymen for these memorials of a glorious past. The result not justifying his expectations, he came to the conclusion that even the best and "*folkelige*" (popular) writings had little power to arouse and revive the energies of a people. Later, he claimed that it had been given to him to discover "the great natural law that the spirit works through the living word."

Care was to be taken to choose the best possible teachers and then they were to be left with a free hand. In such a school everything would depend on securing lecturers who could convey information in a lively and "*folkelig*" (people's) manner. Among these teachers should be four kinds of persons, *viz* :—

(1) A patriotic and sympathetic individual equally familiar with Danish traditions and history who was earnest and eager to pass on his knowledge.

(2) A man of letters—a master of his mother tongue and the classics of his country.

(3) A specialist in all that concerned his country's industries and their business methods.

(4) A specialist in national Government organization and its legal system.

The first of these schools was to be founded at Sorö in Seeland. There Absalon's father had built the cloister in which he died; there Bishop Absalon (founder of Copenhagen) too lay buried; there Saxo wrote his chronicles; there Christian IV built the knightly academy which was to keep the young Danish nobles from foreign universities; while to its successor, Holberg (the only Danish author who ever made a fortune) left that fortune honourably earned by entertaining writings in the mother tongue." Therefore Sorö should be the centre of all that was genuinely Danish in feeling, speech and thought, "so that," added Grundtvig, "we may have the pleasure of showing the world what it is loth to believe, that there is really much in Denmark which is not rotten but fresher, more beautiful and more delightful than can be found in any other place in the world."

Grundtvig hoped that Frederik VI and then Christian VIII would found this High School at Sorö. He did not credit his fellow-countrymen with sufficient enterprise to found one for themselves.

After all, the first Folkehöjskole was founded at Rödding in North Slesvig, and it was the people of the province and not the king, who founded it.

The condition under which the Danish in North Slesvig were living disposed them to welcome Grundtvig's scheme with enthusiasm. On different occasions, the peasants found themselves obliged to send representatives from their own classes to the State Council at Gottorp, if they would not risk being represented by those who despised their Danish nationality.

The antagonism between the two races in their province had aroused a fierce patriotism among the Danes. In 1841 an article appeared in their paper "Dannvirke," welcoming the idea of a Folkehöjskole in North Slesvig. It was to be founded by the peasants themselves. "The people of North Slesvig," it ran, "will raise a glorious memorial to themselves, and history will relate down to the last generation, that it was here that the peasant class for the first time awoke to the knowledge of its own need and built itself a High School." The following year a company was founded, and in 1843 the first Danske Folkehöjskole was opened at

Rödding in North Slesvig. When the war of 1863 ended in the severance of North Slesvig from Denmark, another was started over the border at Askov by Ludvig Schooder, a master at Rödding, while some years earlier in 1853 his friends had presented Bishop Grundtvig on his seventieth birthday with a sum of money to found a High School. There were about 75 of such institutions in Denmark in 1913, and their influence on the national revival is a matter of history.

CHAPTER XVIII.

Hints for India.

Section 1.—General Idea of Co-operation.

Co-operation literally means joint operation or joint working by persons engaged in a like concern, which Sir Horace Plunket calls "better farming, better business and better living." It is the best means of helping one's self and one's fellow-beings. Its seeds are sown deep in the Vedic Mantras,* which are regarded by the Hindus as the source of all knowledge.

The modern theory of co-operation is that an isolated and powerless individual can, by association with others and by moral development and mutual support, obtain in his own degree the material advantages available to wealthy or powerful persons, and thereby develop himself to the fullest extent of his natural abilities. †

In the West the Co-operative Movement dates from the establishment of the Rochdale Pioneer's Society in 1844, on whose model all subsequent societies have been based.

Co-operative Unions are intended to serve the interests of all concerned in a just and fair manner, without causing

*ओउम सहना ववतु सहनौ भुनक्तु सह वीर्यं कर वावहै । तेजस्विनावधीतमस्तु मा विद्विषा वहै ॥ तैत्तिरीय आरण्यक नवम प्रपाठके प्रथमानुवाके ॥

This prayer from the Rig Veda means that, with the merciful protection and aid of the Almighty, we way all mutually protect each other, and enjoy the highest objects of life, and continue to expand and enlarge our energies and capacities by mutual affection and joint efforts; that with the light of the Brilliant Being, the source of all knowledge, all that we learn and teach may spread and shine in the world, and daily progress on the onward march, that the Giver of love and affection may graciously lead us all to live in mutual friendship and affection without any opposition or distrust.

† Report of the Committee on Co-operation in India, 1914-15, page 2.

असाधना वित्तहीना बुद्धिमन्तः सुहृत्तमाः ।
साधयन्त्याशु कार्य्याणि काककूर्ममृगाखुवत् ॥

Intelligent persons friendly combined, like the crow, the turtle, the deer, the mouse, even without wealth, and without material appliances, can readily accomplish great works.—*Hitopadesh.*

loss or undue gain to any one. The Unions connected with agriculture in Denmark combine some of the functions of cultivators of land and some functions of traders into one body, and as such serve the interests of consumers on one hand, and of producers on the other, without employing middlemen. They tend to improve the quality of farm products and secure best prices to the producers. On the other hand they give full value to the consumers by supplying the specified quality of goods required. The Unions meet just needs of the people, and as such they deserve sympathetic support of all rational men and women. Where there are middlemen carrying on trade in the produce of farmers, the latter lose a large portion of the return for their labours, which proportion traders unduly appropriate to themselves, because farmers are not wise enough to stop the interference of middlemen in their business. This is one of the main causes of agricultural indebtedness in India.

Farming alone cannot be done without credit resources. But when the functions of trade are combined with those of farming, credit is doubly necessary, (1) for the farm work, and (2) for the purposes of trade, to enable the produce to be sold at reasonable prices. It is therefore very desirable that farmers and capitalists should join hands and serve the mutual interests of both in a reasonable manner.

Co-operation is a simple economic instrument exceedingly useful in appropriate circumstances, for a great variety of purposes. It is just a simple combination of forces among a number of persons more or less similarly situated, and having a common object in view, for attaining that object. It enables them to make themselves rich by removing obstacles and creating facilities for individual effort. Wherever two shoulders placed against a wheel can make that wheel move faster or further or more smoothly than each shoulder pushing by itself, wherever ten sovereigns laid out in common will purchase more than the same ten gold pieces expended separately, it may be relied upon to vindicate its efficacy. Beyond this it will stimulate intellect, raise the educational and business status, making the trade honest, find new openings for successful enterprise, and teach the value of mutual consideration and mutual help.*

* Agricultural Co-operation, by H. W. Wolff, pages 18,19.

It offers a means for profitably inviting forces for economical working, improving the quality of produce and increasing the output, saving much of the expense which individual workers have to incur. It enables them to obtain better value for produce, cheapens purchases, facilitates sales, creates and steadies markets, renders practical work of sundry kinds, which is not otherwise possible for individuals. Within certain limits it may do away with the middleman and abolish the unnecessary toll levied by him upon commodities on their passage to the consumer. It cannot exploit others. It is not business but common work – an active combination among different persons engaged in like concerns. It aims not at profits but at rendering a common service.*

The difference between Co-operative Unions and Joint Stock Companies is, that whereas the bond in the latter is the bond of money only, the bond in co-oper ation is entirely personal. Co-operation is therefore a bond of persons, not of capital, and one man one vote is consequently the immutable rule, and no dividend upon share capital beyond the accepted market rate for money. In Joint Stock Companies the capital is fixed, the shares are transferable and the membership is limited, while in Co-operative Unions the capital is variable, the shares are not transferable, the membership is unlimited, the society being steadily kept open to new comers to prevent its degenerating into a ring. Joint Stock Companies are a combination of the strong to exploit the weak; while Co-operative Unions represent the combination of the weak with a view to becoming strong. The main feature of co-operation is the spirit of unselfishness and loyalty that pervades it. Co-operation would never be a success if this spirit be absent.

Trade rivalry between nations of the world is responsible for many of the evils prevailing in the leading countries of the world. Bloody wars which crop up every now and then, the high cost of living due to costly armaments and fortifications and consequent miseries and unnatural conditions of life we find in the bigger nations, are all due more or less to this lust of trade domination. The remedy for these evils lies in international co-operation. The benefits which co-operation confers upon individual co-operators in each country, will no doubt be extended to international co-operators.

France, Prussia, Italy, Belgium, Denmark, Norway and Sweden have developed the co-operative idea to a great extent. In India Co-operative Banks and Credit Societies have been firmly established, and we ought to extend the Co-operative principle to agricultural purchases and sales and to the manufacturing of agricultural produce on Danish lines.

With the development of co-operative production to the fullest extent possible, to the extent of even eliminating the competitive system altogether, there will be a gradual fall of profit-mongering; therefore a gradual dissipation of the jealousies which have their roots in the profit seeking, and therefore a gradual removal of the causes of war and the consequent miseries in life. "The international wholesale which many are hopeful of seeing," said Professor Medly of Glasgow recently, "will be the natural medium of exchange of co-operatively produced goods between the various countries; it will regulate the trade between nations as an impartial arbiter, and will be the means of creating trade friendship and peace where there is now trade rivalry and war."

The basic principle of co-operation is at the root of all progress. Without co-operation of all the persons living in the country there can be no organization of any kind, and national work is impossible. We all love to see grand sights, general happiness and prosperity, but unless we all co-operate for national unity, for national work in the various directions, we must remain backward.

Co-operation is one of the highest forms of organised working. The greater and wider the organization, the better and more fruitful are the results. The Danish axiom is that 1 + 1 is more than the arithmetical sum of 2, while the Indian saying is that 1 and 1 become 11.

A nation is a large family made up of the individual houses in the country. The management of a house is impossible without the co-operation of all the members. Likewise for the efficient management of common affairs of a village, town, city or country, the co-operation of all the persons living in the land is absolutely necessary. What is true of an individual family is equally true of the wider circle of the nation.

Unfortunately no country in the world is so divided as the Bharatvarsha, which at one time was the most enlightened, the first cultured among the peoples of the world. Among the causes of its present dissensions, the first and foremost is the want of elementary education among the masses, and the want of that education among all classes of the people which impresses the essential need of co-operation; while various forces are freely at work in the opposite direction. These forces are found among other agencies—

(1) In the degenerated caste system, as practiced now, not as intended in the Scriptures, which constantly keeps the elements of disunion alive by its unconscious practices at separate social gatherings, and rejoicings where persons belonging to different castes, however friendly, cannot join on terms of equality.

(2) In the poverty which makes the people unduly jealous of one another.

All these evils are curable by one premier remedy, *viz.*, education of the proper sort among the people generally, which will make them conscious of the common interests and good of all the people living in the country, without any distinction of caste, colour or creed. The caste system is capable of doing much good, for there is no organization so firm and vital by which the people could be brought together.

If the caste system be made more elastic and maintain the four main divisions, or even the sub-divisions, with the conciousness of the ideas of national life, the different divisions of the people should form so many units of the nation. The castes should be treated as divisions of labour, and should have no barriers like the present one in the matter of inter-dining. The matter of inter-marriages needs scientific investigation. Inter-marriages between persons of different races or nationalities have not given encouraging results.

Section 2.—Indebtedness among the Agricultural Classes of India.

It is generally admitted that the agricultural classes in the greater part of India are heavily involved in debt. Statistics of such indebtedness do not appear to have been put together, though they may be found in parts in the Settlement Reports of the various Districts and from the records of land registration. Apart from these, there are unsecured and unregistered debts which may not be found in those records.

In para. 378, page 100 of Vol. I of the Report on the Enquiry into the Rise of Prices in India (1914), it is stated that "witnesses were almost unanimous in saying that except in some tracts where the agriculturists are peculiarly advantageously placed, they are indebted now as they were before, if not more." This means that notwithstanding the gains which the agriculturists of India have made by the rise in prices of agricultural produce which has taken place during the last 20 years or so, the indebtedness of the agriculturists has remained the same as before if it has not actually gone up.

His Highness the Maharaja Gaekwar of Baroda has lately had an enquiry made into the agricultural intebtedness in that State, and the report of the committee which made that enquiry was published in 1913.

The agricultural population of the Baroda State in 1911 numbered 1,284,365 persons or 63·10 per cent. of the whole population. They were divided into 307,753 khatas (land-holdings), and 40 per cent. of these who were well-to-do people, either money-lenders or big landlords, were free from debts. The remaining 60 per cent. of the khatadars owed debts aggregating a total of Rs. 8,06,44,520, or an average of Rs. 450 per khata (holding). The average gross income per khata was Rs. 215 per annum; the indebtedtedness was therefore a little more than twice the annual gross income of the agriculturists. When all expenses on agriculture are taken into consideration, this income per khata becomes very small, and the Director of Agriculture of the Baroda State remarked that "for a man of small means and with uncertain climate, this indebtedness was very heavy." Taking the average rate

of interest at 12 % per annum, the annual interest alone comes to Rs. 54, or nearly 25 % of the gross income (see para 100, page 31 of the Report). Deducting this interest from the gross income of Rs. 215 per khata, there remains a balance of Rs. 161 to be divided among the four persons who on an average came under each khata. The gross income per head was therefore Rs. $\frac{161}{4}$ = Rs 40-4 per annum, from which Rs. 19 should be deducted for land revenue, other taxes and expenses of cultivation, etc., as given in para. 52 of the Report, which is reproduced below. This leaves a balance of Rs 21-4 per head, while para. 106, page 33 of the Report, gives Rs. 36 per head per annum as the cost of necessaries for efficient living. This clearly shows that the average farmer's accounts show a deficit economically, which accounts for his continued indebtedness.

In this connection I cannot do better than reproduce paras. 51 to 54 and 106 of the Baroda Report :—

"51. The burdensomeness of agricultural indebtedness depends upon the average income of the farming community and upon the nature of their income. To people with large, steady and sure incomes ordinary indebtedness is not at all pressing, while to people with small unsteady sources of maintenance, any debt will be depressing. Therefore, it is necessary that we should look into the average income of our cultivating class. The total agricultural population returned by the last Census is 1,284,365. But this is not all the population supported by agriculture. Every village has its class of artisans and watchmen who depend directly for their maintenance upon the produce of the land. The village potter supplies pots, the carpenter repairs implements, ploughs and carts, the cobbler repairs shoes, the bhangi does conservancy work, the smith repairs the kos and other implements, and the watchmen guard the fields. The list may be multiplied *ad-infinitum*. All these members of the autonomous village community are paid not in cash but in kind. When the harvest is ripe and is brought into the khali, there gathers this family, each member receiving his fixed remuneration from the produce. This share fluctuates with the character of the season. Contribution is full and ample in good seasons, but in seasons of scarcity or famine the yearly payment is paid in

part or not paid at all. They are in a way real bhagdars (co-partners) in the agricultural produce. It is impossible to find out the total number of these dependents, but the total number directly supported by agriculture is put down by the Census Commissioner at 75 % of the population or 1,500,000 in round numbers.

"52. The total produce from the land during the last three years for which full figures are avilable, is on an average for one year Rs. 6,12,85,306. This includes income from food and non-food stuffs, including grass, etc., but does not include income from dairy, fruit trees and other sources besides agriculture. At the most, the income from these sources cannot be more than Rs. 50,00,000, making all into a total of Rs. 6,62,85,000 in round figures. This brings the average to Rs. 45 per head. This is gross income, out of which the farmer has to pay the land revenue and other taxes and charges, which come to about Rs. 7 per head of the population. Out of this have to be paid expenses of cultivation and prices of seeds, manure, farm implements, etc., which last expenses are rather heavy since 1899, when thousands of cattle died. If we take Rs. 3 per bigha cultivated, the expenses would be Rs. 12 per head. Then he has to pay Rs. 6 per head at least for interest on loans contracted, which will be shown later on. This brings the total of fixed charges to Rs. 25, leaving a balance of Rs. 20 to meet all other expenses. They include all the regular charges for his maintenance during the whole year, for his food, clothing and shelter ; at the same time including all the extraordinary expenses, productive expenses, such as purchase of land, replacing dead cattle or a broken plough or a cart, etc., and unproductive, such as funeral and marriage festivities. The requirements for man in the tropics are very few, but there must be some limit beyond which wants cannot be reduced. However, this income may be considered sufficient to supply the merest necessaries of life, with none of its conveniences or luxuries. But all the years are not alike. Seasons frequently fail. During the last twelve years we have had two famines and several years of scarcity and short crops. If we reduce all these losses by yearly failure to a concrete figure, we may be justified in saying that there were three complete failures in 12 years. On this basis the above-

mentioned amount of Rs. 20 would be further reduced to Rs. 13-1-3. It will be readily seen that this amount is not sufficient to supply even the barest necessaries of life, much less to recoup the enormous loss of property during the famine years. Ill-fed, ill-clad people are not likely even to maintain strength, much less to advance in it.

"53. That this estimate is not exaggerated can be shown from the results of the special inquiry instituted before the Compulsory Education Act was passed. In the year 1905 a special census of three typical villages in each Taluka was ordered by His Highness the Maharaja Saheb, to investigate how far people are able to pay for education. The returns submitted show that out of 5,729 workers 4,449 had incomes under Rs. 100 and 1,280 had above the limit. Each family consisted of four persons—wife, husband and two children.

"54. While discussing this subject of the average income of the agricultural classes, it may be convenient to mention here a few facts about the incidence of taxation which the people of Baroda have to bear. Taxation has considerable bearing on the economic condition of a people. Unequal or high taxation presses upon the people, while an equitable taxation serves the same purpose so far as the Government revenue is concerned, but stimulates economic development. If we take land revenue as a tax, and there is a strong show of authority to support this view, the principal income derived by the Baroda Raj is from land.

The following table gives the various sources of Government revenue from taxation in the year 1909-1910 :—

Land Revenue	Rs.	93,59,509
Local cess	„	6,44,671
Other taxes	„	1,48,791
Customs	„	1,74,227
Excise	„	11,43,310
Stamps	„	5,48,168
Court and Registration fees ...	„	97,868
Total	Rs.	1,21,16,544

"Taking the population of the last Census at 2,032,798, the incidence of taxation per head of poulation comes to Rs. 6 or a little less. The total production in the State is about seven crores and fifteen lakhs, which includes six crores and fifteen lakhs from agriculture, and a crore more from sources such as dairy and other extractive and manufacturing industries. On the basis of this calculation the average gross income comes to Rs. 35 per head. The incidence of taxation is Rs. 6 per head, or 17 per cent.

"106. We have seen before that the people are poor. Their incomes are small. It has been previously shown that the net available income for personal and social expenses per head in the State is Rs. 20 a year. It was shown before the last Vitality Commission in the State that Rs. 36 per head are at least necesssary for efficient living. This clearly shows that the average farmer's accounts show a deficit economically. A man permanently placed in such a position must needs borrow, if he can, to make up the deficiency. Every year an appreciable number of farmers have to go to money-lenders at the beginning of the year for money to purchase seeds or to meet other requirements of agriculture or for their own maintenance. This is a general custom with most of the farmers. It shows that the harvest does not yield sufficient to carry him through the whole year."

This discloses a deplorable state of the agricultural classes of the Baroda State, who form 75% of the total population. The Baroda territory is situated in the south-western part of India, in the Province known as Guzerat, which has been styled by some writers as the Garden of India on account of its fertile soil.

From the general appearance of the conditions pravailing in the country, what is true of the Baroda territory is equally true of the United Provinces of Agra and Oudh; while the soil of Rajputana and Ajmer-Merwara is very much inferior, the condition of agriculturists in such Provinces might be worse still. The people of the Panjab and some parts of the United Provinces which are served by irrigation canals taken from snow-fed rivers should be better off, but indebtedness has not spared the agriculturists even in those parts, as is evident from the Land Alienation Act and other measures taken by Government for its relief.

In the Districts of Ajmer-Merwara, the area of lands under mortgage rose from 30,319 acres in 1884 to 46,664 acres in 1908; while at the same time no less than 18,389 acres had been sold in the 24 years between 1884 and 1908. The total amount of mortgage debt in 1908 was estimated at not less than 18 lakhs of rupees, which was more than six times the Government revenue demand of the districts. The land under mortgage with that sold comes to a total of 65,053 acres out of 197,516 acres under cultivation. It is just under one-third of this total.*

The Hon'ble Rai Bahadur B. D. Shukul of Sihora in the Central Provinces, concluded his evidence before the Government Committee on Co-operation, at its sitting at Nagpur in 1914 in the following terms :—

"As one connected with the Co-operative movement in the Tashil of Sihora since its inauguration, and as one in close and constant touch with the tenantry of this tract, being a landowner myself, I cannot help observing, as the general result of my humble experience, that in spite of our best endeavour I have been often confronted with serious difficulties regarding the subject of reducing the heavy indebtedness of our constituent members of Co-operative Credit Societies."

Such opinions may be multiplied, but the time at my disposal does not allow me to extract them from various records. I will content myself by quoting the following extracts from the Report of the Government Committee of 1914-15 on Co-operation in India, presided over by Sir E. D. Maclagan, K.C.I.E., C.S.I., I.C.S. :—

"The chief object of co-operation in India was to deal with the stagnation of the poorer classes, and more especially of the agriculturists who constitute the bulk of the population. It was found in many parts of India, as in most European countries, that in spite of the rapid growth of commerce and improvements in communications, *the economic condition of the peasants had not been progressing as it should have done, that the indebtedness instead of decreasing had tended to increase*, that usury was still rampant, that the agricultural methods had not improved,

* Taken from official records kindly lent me by the Commissioner, Ajmer-Merwara.

and that *the old unsatisfactory features of a backward rural economy seemed destined persistently to remain.* The more obvious features of the situation presented themselves in the form of usury and land-grabbing on the part of the money-lending classes, while *the agricultural classes* either hoarded their savings or *owing to thriftlessness and indebtedness showed themselves unable to withstand bad seasons and to meet organised trade on equal terms.*

"The stagnation of the agricultural classes in the greater part of the country has for many years attracted the attention of Government, and various remedies have been tried for improving their material condition. A system of State loans was introduced, Post Office Savings Banks were opened, the Civil law relating to debt was frequently and extensively amended, special legislation was initiated at various times in different areas for dealing with tenant rights, the alienation of land, the general settlement of debt and the curbing of usury."

The italics are mine. It will be observed that notwithstanding the various measures taken by Government for the relief of the people, the indebtedness among the agricultural classes in India is still a crying evil.

The main causes of the agricultural indebtedness in India may with certain qualifications, which will be presently explained, be put down as under :—

(1) Failures of the monsoon current.

(2) High rates of interest paid on loans.

(3) Ignorance and illiteracy of the people, to which may be attributed the following :—

 (*a*) Absence of scientific methods and of good implements for agriculture.

 (*b*) Improvidence and extravagance on marriages, death ceremonies and drinks.

 (*c*) Litigation.

 (*d*) Losses due to sale of some of the agricultural produce at less than cost price or at low rates.

Almost all the famines in India are due to failures of the monsoon current, as under the tropical sun the raising

of agricultural crops depends very largely upon the periodic rains, which are the chief controlling factor in the life and means of sustenance of the people of India.

The failure of seasons stands on the top of the list of causes of the ryots' indebtedness. To a farmer there is no calamity greater or more severe than the failure of crops. A failure of rain does not mean a failure of crops only, but it entails waste of labour and of all preliminary expenses on seeds, manure, outside labour and extra expenses on fodder imported from long distances by rail. It appreciably reduces the value of live-stock which, for want of fodder, either die or are sold to butchers at nominal prices.

In the year 1905 many of the agriculturists in Ajmer had to sow seeds twice, first in May when they had an early burst of monsoon, followed by a long break, and again in August when a second fall of rain occurred. In both cases the plants withered before they grew high enough to be used even as fodder for cattle. In many cases of such droughts cattle die for want of fodder, and the agriculturists themselves and their families deteriorate in health for want of food. Money is required to maintain as well as to replace cattle, etc., and to start agricultural operations next year. A large number of cases came to the writer's personal observation during the famines of 1899, 1905 and 1907, when many of the agriculturists in the District of Ajmer lost the whole of their landed property in their attempt to save their cattle by using imported fodder.

If agriculture were a paying concern like other occupations, the agriculturists should be able to face such bad seasons with their accumulated resources from good years. But as stated before, agriculture as it is conducted at present in many parts of India does not, it seems, pay even the costs actually incurred.

A good deal has been done by the Government providing irrigation canals and tanks which materially help the people in many parts of the country; but a good deal more remains still to be done in the way of providing and extending irrigation canals to those parts of the country which have no such canals at present. The mountains of India supply a vast amount of alluvial soils and an unlimited

quantity of snow-fed water, most of which is allowed at present to run down into the ocean. This water might be spread over the plains by means of canals. Among the human remedies to cure the evils arising from insufficient rainfalls, there is no other but the provision of such canals which would adequately meet the requirements of the country.

The matter of high rates of interest is dealt with in subsequent paras. under section 5, page 243.

The third cause—ignorance and illiteracy of the people—is really responsible for many of the ills and evils of India, where only 5·92 per cent. of the people are literate, while 294·87 millions out of 313·41 million persons are totally illiterate, groping in darkness. No doubt education is now given to 4,242,294, or 7·06 per cent. of the youth of the school-going age (10-20 years), but nothing has been done to educate the remaining* 55,802,461, or 92·94 per cent. of the youth, so as to make them efficient members of the State. The education of many of those even who attend the existing institutions is conducted on lines totally unsuited to the requirements of the country, the arrangements and institutions for technical or industrial training being totally insufficient, with the result that a large portion of the educated youth find it hard to secure employment on a remunerative pay. While the Government on the one hand insist upon what they call efficiency, the people on the other hand complain of their boys finding no accommodation in schools and colleges. A very strong case for making elementary education free and compulsory in India was made out by the late Hon'ble G. K. Gokhale, C.I.E., who brought in a Bill on the subject before the Legislative Council of the Governor-General of India, but unfortunately it was not accepted by the Government, though all classes of the people and their elected representatives in the Council were unanimously in favour of the

	Age. 10-15	Per cen. tage.	Age. 15-20	Per cen. tage.	Age. 10-20	Per cent. tage.
*Literate	2,019,491	5·96	2,222,803	8·49	4.242,294	7·06
Illiterate	31,843,791	94·04	23,958,670	91·51	55,802,461	92·94
Total ...	33,863,282	100·00	26,181,473	100·00	60,044,755	100·00

Bill being passed. The matter of general education of the people is of such vital importance that a measure of that nature will, it is hoped, before long be on the statutes of India.

The success of agriculture in Denmark is largely due to the system of general education followed in that country, as described in Chapter XVII. of this volume. The attention of Indian educationalists is drawn to the same, and the writer fervently hopes that as the people of India make material progress and are able to defray the expenses of their education, steps will be taken to found People's High Schools similar to the Danish Folkehojskoler, where sons and daughters of Indian agriculturists will go and spend their leisure months in acquiring knowledge, and where knowledge and knowledge alone will be the sole aim and object and the sole prize and reward, and where no examinations will be held and no certificates needed, as was the case in former days in India itself.

The cost of litigation adds largely to the indebtedness, and the continued poverty has very much demoralised the present-day agriculturist. Not satisfied with his own property and produce, he often tries to encroach upon his neighbours'. He borrows money which he is unable to repay. These lead to costly litigation, resulting in his complete ruin in some cases. "Litigation has been and is, states Mr. K. L. Datta, "the bane of the country, and it is difficult to imagine how many families, rich or poor, have been ruined by it" (Para. 388, page 162 of the Report on the Rise of Prices in India, 1914).

Their indebtedness is usually ascribed to—

(1) Land-grabbing money-lenders.

(2) Extravagance on the part of agriculturists in—

(a) Marriage expenses.

(b) Death ceremonies of members of family.

(c) Drinks.

These causes are true in some but not in a large majority of the cases. It is true that some money-lenders charge very high rates of interest, but high interest is levied in cases of low or doubtful security. Where security is ample and generally in cases of unencumbered land, loans can be

raised at as low a rate of interest as 6 per cent. per annum. Cases of high interest are due to sheer carelessness on the part of borrowers or to doubtful security.

Para 395, page 165, Vol. I of the Report on the Rise of Prices in India (1914) admits that "the village money-lender is in present circumstances an absolute necessity."

Many castes among the agriculturists of India do not use alcoholic drinks. For instance, Kurmis of the United Provinces of Agra and Oudh are among such, yet they have been losing in their life-long profession of agriculture. Many respectable houses of these people have entirely lost their properties in the writer's personal knowledge through no extravagance on their part. It is not quite correct to say they live an extravagant life. Their poor dwellings, coarse and insufficient clothing, and scanty food show that they are not extravagant.

On the contrary many of them live a very sober, modest life. It is true a man does spend a couple of hundred rupees on his or his son's or daughter's marriage, but most of the expense is on ornaments of silver or on metal-ware for household use. The former is a sort of investment, while the latter are indispensable for a family. If one could not meet such expenses once in one's lifetime, life would not be worth living.

No one advocates extravagance in death ceremonies. In some places unnecessary expenses used to be incurred according to the prevailing custom and beliefs of the people, but thanks to the work of the Arya Samaj, a great reform in this matter has been effected among the Hindus in many parts of India. Cases of extravagance under this head are very rare among the agriculturists.

Marriage and death ceremonies are common among all classes of Indians. If these ceremonies were responsible for the agricultural indebtedness, other classes of the people who observed and performed the same ceremonies with similar or greater expenses, should have been similarly involved in debt, which is not the case. One of the main causes of the agricultural indebtedness, as repeatedly pointed out in these pages, is the indifferent manner in which the sale-business of agricultural produce is conducted at present in India.

Unfortunately agriculturists of India are mostly illiterate. Even those who can read and write, do not, through sheer indifference, keep an account of their costs or of sale proceeds. It has never occurred to them that they are working at a loss ; the only loss they can imagine is that due to the failures of the monsoon or through blights of frost or insect pests. They are generally under the impression that they have no control over the sale-prices of their produce, that they must sell their articles at the customary rates, which are usually named or varied by middlemen, who buy and sell to consumers or other dealers. The fruits of the agriculturists' labours generally go to the middlemen and sometimes to the consumer. By selling their produce at prices lower than their costs, they incur losses of which they have no suspicion, neither do they ever compare their total sale proceeds with the total costs. Whenever they stand in need of cash they go to the money-lender and borrow to make up their deficits. Debts thus contracted gradually grow to large sums, which ultimately compel them to part with their land, upon the security of which they had raised the loans. This is how most of the agriculturists in India have lost their lands.

Of all the people in India, the agriculturist seems to have the worst lot. He works hard and skilfully, yet he gets the coarsest food and passes his life in the roughest manner. He is heavily involved in debt. His modest living, poor cottage, simple dress clearly show he is not extravagant. Then what is his poverty due to ? It is due to a great extent to the unremunerative rates at which agricultural produce is at present disposed of *individually* by the agriculturists of India.

Agriculture in many parts of India has become so unprofitable and risky that some of the agriculturists have given up their hereditary occupation and have taken ordinary labour in the Public Works Department of Government, in Railway Workshops or in private mills, where they earn a wage of 4 to 5 annas per day of 8 hours. This fact clearly shows that agricultural work does not pay a wage of even 4 annas per day. The following extract from para. 46 of the Report on the Agricultural Indebtedness in the Boroda State confirms this view (the italics therein are mine :—

"46. In this general depression, the agricultural labourers have fared better than the land-holder or tenant. Ever since 1899, risks in agriculture have increased owing to frequent failures of the seasons, insect pests, frosts, etc. *It generally pays better to be a day-labourer than to be a farm-owner.* He can easily migrate to other provinces or districts in bad years. At the same time the demand for general labour has increased all round. Protective works, such as railways and irrigation canals, are being opened everywhere. *Growing manufacturing* industries are creating a new demand for labour."

The proverty among the agriculturists is well known all over the country. It is evident from the following facts :—

(1) Heavy indebtedness among agriculturists and passing of land out of their hands.

(2) Inability of agriculturists to face even a single bad season.

(3) Their poor unhealthy dwellings made mostly of mud, with grass thatching.

(4) Insufficient clothing, even in the shivering cold of the winter.

(5) Insufficient food of coarse corn, without even common articles of luxury, such as milk, ghi, sugar, etc.

Their poverty, as stated before, is due greatly to their not realising a fair value of their produce, owing to the ignorance of their costs and tactics of middlemen. The remedies for the evils from which they are suffering are therefore :—

(1) Education to remove their ignorance.

(2) Formation of Co-operative Unions for joint manufacture and sale of their produce to enable them to realize a fair value of their produce and an adequate return for their labours.

They buy most of their requirements, such as tools and implements, clothing, etc., from foreign lands at the highest prices; while they are compelled to sell many items of their produce at the lowest prices in the world. These are the main reasons of their poverty and indebtedness. The

fault lies with the Indian agriculturist. He is himself responsible for it. It is his own ignorance which is keeping him down. He has himself to realize his position and then he is sure to apply remedies. The proper remedy is the formation of Co-operative Unions on the lines of Denmark.

High Prices and Agriculturists.—The prices of food-grains have during recent years gone up in India, and the superficial view is that this rise has benefited the agricultural classes. Notwithstanding this benefit, the condition of the agriculturist is still as bad as before this rise in prices. The main reason is that a considerable share of the rise in prices goes to the middlemen—the traders—whilst with the rise in prices of food-grains there has been a corresponding rise in the cost of raising agricultural crops. The prices of all necessaries of production have risen, whether it be seeds, agricultural implements, bullocks or manual labour, even the cost of the farmers' own living, as he has also to buy his food-stuff at the market rates. The average rate of rents, too, has considerably gone up, as also the land revenue assessment. In a single year of drought, the agriculturist loses all he possesses, *viz.*, his cattle, land, and savings, if any, he had previously made. He incurs debts which he can seldom repay, as his business is on the whole a losing one.

Section 3.—Unprofitable Sale of Agricultural Produce.

The most remarkable difference between Denmark and India is that by the organization of Co-operative Unions, the Danish farmer realises the full value of his produce, while the Indian farmer, through his ignorance and want of an organization, sells his produce individually at low rates, and most of the profits from his labours go to the middlemen.

With the primitive methods and tools of agriculture generally in vogue in India, the out-turn from land is not what might be raised with the modern methods and appliances of the West. With the spread of agricultural instruc-

tion and training, these defects will no doubt be remedied in course of time. But the great drawback from which Indian agriculturists suffer most is their ignorance of the costs of raising various kinds of crops and live-stock. Illiteracy is directly responsible for this, as they cannot keep accounts or make calculations of what they spend upon, and what they realise from, their produce. In the absence of these figures they dispose of their produce in many cases and in many parts of India below their actual costs, which to a great extent accounts for their continued indebtedness and poverty.

Unfortunately complete statistics are not available, but the subject is of such vital importance that I think it my duty to my country to draw the attention of those who are in a position to test the accuracy or otherwise of this statement.

My attention to this aspect of the matter was attracted when, upon an examination of the accounts of cultivation of my own lands at Ajmer, I found I was continually losing in good as well as in lean years. In years of drought the losses were obvious; but in years of plenty and prosperity also the accounts of my land cultivation showed doubtful results. Were it not for my income from other sources it would have been impossible for me to retain my lands after the losses incurred in the bad years between 1899 and 1907, when many of the agriculturists of Ajmer either totally lost their agricultural stock or saved it at too heavy an expense on fodder brought from other Provinces, besides incurring other losses usually occasioned in famine years in India.

It is true the agriculturists as a body have gained by the rise in prices of food-grains which has taken place in India since the year 1905, but much of the rise generally goes to the middlemen. The losses which have been mentioned here are chiefly from the sale of live-stock, fresh fruits and vegetables, milk and milk products.

In the case of cattle stock a bull or a cow is usually saleable at the age of four years, when bulls are fit for plough or draught work and cows calve in India. The cost of feeding a bull or a cow may be taken at least at two annas per day, or Rs. 4 per month, which comes to Rs. 192 for the four years. The sale prices of the ordinary cattle

generally vary from Rs. 20 to Rs. 100 per head. Below are given the actual average sale prices per bull obtained in the annual fairs held at Pushkar in the Ajmer District and in the Singaji Fair (Tehsil Harsud) in the Central Provinces during the years noted under each fair :—

	Pushkar Fair.		Singaji Fair.	
	Nov. 1912.	Nov. 1914.	1913-14.	1914-15.
Total number of bulls sold	4,875	2,959	7,666	4,047
	Rs.	Rs.	Rs.	Rs.
Maximum price per bull...	310	363	350	188
Minimum „ „ ...	5	4	5	5
*Average „ „ ...	44	51	55	44

Taking the average cost at Rs. 192/- and the average sale prices at Rs. 44, 51 and Rs. 55 per head, the agriculturists who breed such animals lose from Rs. 141 to Rs. 137 per head.

There is no reason why in normal seasons one should not realise the full cost and some profit on the live-stock one rears, but the ignorance of the people is responsible for this state of the cattle market.†

Perishable articles, such as fruit and vegetables, are sold at absurdly low rates, which, with some rise in some cases, have been in force since a long time. They are what may be called customary rates of each locality without regard to the cost of production. The people have been selling certain articles at certain rates, and these rates continue until

*These prices include all sorts of bullocks, old and young, ordinary animals for agriculture, as well as superior varieties for the haulage of carts and carriages.

†In India during famine years when fodder becomes scarce, it may be noted that the prices of cattle fall immensely, though since the year 1911 a large number of cattle have been saved under the liberal concessions allowed by the Government of India and some of the Indian States in the freight charges for the carriage of fodder to areas affected with drought.

Fodder famines have occurred every year since 1911 in one or more Provinces of India, and the Governments have been defraying the full freight charges according to the Tariffs of the Railways carrying the fodder, making the owners of the fodder pay only a nominal charge of six pies (half-penny) per mile per wagon of any gauge. In some cases the people have been allowed to rail their cattle from the famished areas under a similar concession in the freight charges for grazing purposes. These concessions have given great relief to the agriculturists as well as other owners of live-stock. The people in many parts of the country could, however, very well lay-by stocks of fodder in good seasons, which should meet their requirements in years of drought.

a rise spontaneously takes place through a local scarcity involving imports from other places. Some rise in the prices has no doubt come about in this manner, but it is not commensurate with the rises which have taken place in the general cost of living; and ignorant agriculturists of villages hardly get the benefits of these rises either. The benefits generally go to the middlemen.

In the case of grain and seeds, the sales are made individually by agriculturists, who have no idea of the prices in large markets. Under pressure from creditors, they part with their produce at inopportune times when the local prices are the lowest. In some cases they enter into contracts with money-lenders months before the crops are ready, fixing the sale price at the time of such contracts. All these go against the cultivators, who have no organization to protect their interests. The middlemen take the profits and prosper at the expense of the Indian agriculturists. The cities of Bombay and Calcutta have palatial buildings, while the real producers of wealth live in unhealthy huts made of mud and grass, the like of which are to be found in no civilized country in the world. The farmers of Denmark have large pucca dwellings with stalls and stables for live-stock and telephonic communication all over the country, by which they obtain the latest intelligence concerning their business and freely communicate with one another.

Large centres like Bombay and Calcutta do not grow any crops for export. They have industrial works, but most of their business is of a transit nature, *viz.*, the export of raw articles like grain and seeds, cotton and jute, hide and skins, etc. All these are agricultural produce due to the tillers of land. Why should dealers have such an advantage over the agriculturists if the latter were careful to look after their interests? The fault lies with the agriculturists themselves, because they have no organization, no union to look after their interests and to dispose of their produce to best advantage at reasonable rates, which should retain for the agriculturists the profits which are now going towards the high buildings of seaport cities and other trading centres. In fact these palaces should belong to the agriculturists, while their mud cottages should turn into decent pucca farm-houses as all of them have in Denmark.

Section 4.—Co-operative Movement in India.

From the blue-book of statements showing progress of the co-operative movement in India during the year 1913-14, it appears that the total number of societies at the end of the year was 15,673, with a membership of 744,226 and a capital of 771·63 lakhs of rupees. The societies were divided under three main heads as shown below :—

	No. of Societies.	No. of Members.	Capital, Rs.
Central ...	329	34,710	2,90,37,180
Non-Agricultural	806	109,694	4,94,01,689
Agricultural ...	14,538	599,822	83,24,676
Total ...	15,673	744,226	7,77,63,545

Of the 15,673 societies, 15,328 were Credit Societies, which were fairly well established in all the Provinces. The remaining 345 societies were of other kinds. The details of the latter under the several Provinces were given as follows :—

	II. Purchase and Sale.	III. Production.	IV. Production and Sale.	V. Insurance.	VI. Other form of Co-operation.
Madras	10	1	0	0	11
Central Provinces ...	0	11	2	0	1
Bengal	0	0	1	0	3
Bombay	38	0	5	0	2
United Provinces ...	60	0	11	1	0
Panjab	19	0	4	0	0
Burma	0	0	63	59	0
Coorg	0	0	0	9	0
Mysore	22	1	3	0	6
Behar, Orissa	2	0	0	0	0
Total ...	151	13	89	69	23

Throughout the continent of India they had a total of 345 Commercial Co-operative Unions. They were in their early infancy. In the district of Ajmer-Merwara there was not even one of them. What is badly needed is the establishment of Commercial Co-operative Unions in order to change the present non-paying character of Indian agriculture into a profitable business.

The agricultural Co-operative Credit Societies now established in India are for the most part composed of peasant-owners or tenants, and no steps have yet been taken to extend co-operation for the benefit of the class of large proprietors who own the bulk of the land in several provinces and whose estates are often much encumbered.* The Credit Societies of the nature described in Chapter XVI of this volume should meet requirements of large estate-owners as well as small-holders. If the business of land-owners be established on a sound basis, and accurate records kept of their property and encumbrances, any capital required, whether for long or for short periods, will be fairly met through such societies or from banks.

The Committee on Co-operation in India of 1914 was appointed by the Government of India to satisfy itself that the movement was proceeding on lines economically and financially sound (see page 5 of the Report, 1915). The Report of the Committee deals mainly with the matter of agricultural credit. The Committee, however, did not in the least desire to belittle the importance to other branches of co-operation than credit; they believed that "great developments may be expected in industrial co-operation and in the application of co-operative principles to many branches of agricultural organizations." "But these forms of co-operation," they added, "are as yet for the most part in their early infancy, and they occupy a comparatively small portion of the ground at present covered by co-operative effort in this country." The number of non-credit societies in the year 1914 was 249 against 14,317 of credit societies in India. The former consisted of 82 non-agricultural and 167 agricultural non-credit societies. Under the heads of classification adopted they appeared as under:—

*Para. 20, page 14 of the Report of the Committee on Co-operation in India 1914-15.

	Agricultural.	Non-agricultural.
Purchase or purchase and sale	11	63
Production	3	1
Production and sale	78	8
Insurance	69	0
Others	6	10
Total	167	82

The non-agricultural non-credit societies were for the purchase of yarn and silk for weavers, cane for basket-makers, timber for carpenters, and implements for several industries where production and sale of cotton and silk cloth, durries and furniture were undertaken. Some building societies were organised and the purchase and sale of common necessaries were also being carried on.

Among the agricultural non-credit societies were those for the sale of produce, and for cattle insurance. The former were chiefly in Burma for the sale of paddy and ground-nuts to wholesale dealers at Rangoon. There were, however, no Co-operative Dairies or other factories in India. The co-operative movement in India has not yet touched any of the manufacturing concerns in connection with the agricultural produce, which are a prominent feature in the agricultural co-operation in Denmark, nor has the co-operative movement in India been directed towards the breeding and controlling of live-stock in connection with agriculture.

The Cattle Insurance Societies were almost entirely in Burma and Ceylon, there being only one society in the United Provinces in the rest of India. The schemes adopted seem to be expensive and unlikely to be adopted generally. The Committee on Co-operation in India thought there would be little or no risk to Government in giving a guarantee of financial support in case of necessity, provided the premia are fixed on reasonable basis, and they recommended that the Local Governments should consider the advisability of financial support or guarantee when reinsurance societies are projected.

Societies for the insurance of agricultural crops against damage by hail have not yet been started in any part of India. Such societies, the Committee stated, would be useful, and in view of the remission of land-revenue on account of damage done by hail, the system to be followed in constituting Hail Insurance Societies would approximate very closely to that suggested by the Committee for the insurance of cattle (page 11 of the Report).

Most of the agricultural non-credit societies, and especially those for the supply of seed and implements, can, in the opinion of the Committee, best be combined with credit societies. This is suitable at the start while the business done is small. But the accounts of each of such annexes must be kept separate, so that later on when the business grows sufficiently, it may be transferred to separate bodies, as they have in Denmark.

Ordinarily the Committee did not think a Society should itself become the owner of the commodities handled at the seed and implement stores. "It is preferable," they added, "that it should buy or sell on commission, or on some system under which it merely undertakes joint sale or purchase on behalf of members at their risk." These remarks are evidently meant to apply while this business is conducted in combination with a credit society. When separate societies for this business are formed, the members of such societies will of course be responsible for their finances. The question of commission is a matter of detail which may or may not be adopted, according as it suits the society to buy outright and sell on its own account or on account of owners on commission. Any surplus stores beyond the requirements of members may with advantage be sold to non-members at such rates as the Managing Committee may lay down in each case.

The main evil which the Government of India have been trying to cure is the indebtedness among the agricultural classes. The indebtedness cannot be the cause but an effect of the economic causes prevailing in the country, which act and react upon each other. The co-operative movement which has been started by the Government of India among the people is no doubt a true remedy to cure the economic diseases from which the people of India have been suffering so long, but it deals at present mainly with the supply of

credit to agriculturists *who are in a depressed condition*, in order to bring down usury and the high rates of interest paid by the poorer classes of agriculturists on loans obtained from money-lenders. So far the co-operative movement in India meets only one of the evils, but there is a greater evil among the agriculturists of India generally which does not appear to be generally known and to which the writer draws special attention of all well-wishers of the country. This evil is really at the bottom of the agricultural indebtedness which is caused by losses unknowingly borne by the agriculturists by selling their produce at less than their cost prices or at low unremunerative rates, which drives them to the money-lenders year after year, and from which they have no escape unless they form Co-operative Unions for the joint sale of their produce on the lines of the Danish farmers. The so-called cheapness of India is a delusion. The cheapness is at the loss of the agriculturist, who does not realise his costs of production in many cases in many parts of India.

We have now co-operative credit societies established by our Government all over India. They are intended to advance loans to depressed farmers. In this respect they do no doubt help those agriculturists who are in the hands of exhorbitant money-lenders, but will not improve the sale business of the agriculturists. For the sale of agricultural produce, separate unions are necessary, and we should have them as soon as possible.

In order to make the co-operative credit societies a thorough success, we should have Co-operative Unions for the joint sale of agricultural produce and joint purchase of agricultural requirements. We must strike at the root cause of the farmers' evil. His poverty and indebtedness will not be cured so long as he sells his produce at a loss. He does not realise this fact because he is utterly ignorant and keeps no account of his cost or of sale proceeds. To put his business on a sound footing, he must have an organization to sell his produce at prices which should cover his costs and leave a margin for profit. Instead of doing this business individually, he must learn to do it jointly with his neighbours and co-workers, under an intelligent management which may be fully conversant with the markets and market prices.

Section 5.—Hints for Extension of the Co-operative Movement in India.

In order to realize a fair value, it is necessary to have joint sales of similar articles produced by different persons. By a joint sale, competition and cutting down of prices may be avoided. The practice of forming "corners" for certain kinds of goods has no doubt been developed from the practice of joint sales. But by cornering goods sometimes attempts are made at unduly raising the price of goods which, in the general interests of the community, is not desirable; where, however, competition is carried on too far, *i.e.*, to a losing extent, or where, through the ignorance of producers as in India, a fair value is not realized, joint sale is legitimate and one of the best and most efficient means of bringing a non-paying business to a satisfactory footing. Such combinations have been formed in most of the European countries, and are a special feature in the Danish and Dutch agricultural industries.

Before an improvement could be made in the condition of the Indian Agriculturists, they must realise the causes of their disease. It is necessary, therefore, to advise them to find out the cost ordinarily incurred in producing live-stock and various articles which they sell generally. A realization of facts in this connection is sure to lead them to adopt the proper remedies.

One of the chief remedies, as noted above, is the joint sale of produce. In Denmark this is arranged by Co-operative Unions of farmers. The farmers themselves have formed those unions, and they have been helped by their Government with expert advice and pecuniary aid where necessary.

To uplift themselves, the agriculturists and land-owners and the capitalists of India should combine and use their joint efforts and resources towards the formation of Co-operative Unions on the same lines as Denmark has, for purposes of the following nature :—

(1) Joint storage and sale of grain, seeds, dry vegetables, etc.; collection and joint sale of fresh fruits and vegetables; joint sale of live-stock, etc.

(2) Joint purchase of agricultural requisites, such as seeds, manures, cattle food implements, machinery, etc.

(3) Joint use of machinery, large works, appliances, etc.

(4) Mutual insurance of cattle, crops, etc.

(5) Improvement in the breeds of cattle and increase of milch cattle to be effected for the present under the direction of the Civil Veterinary Department, but as soon as the agriculturists are able to stand upon their legs, they should have their Cattle-breeding Unions, Cattle-breeding Centres and Milk Control Unions, as described in Chapters V and VI.

(6) Joint manufacture and sale of agricultural produce.

Factories may be started for the manufacture of—
Butter, ghi, mawa, etc.
Cheese in the cold climate of the Himalayan regions, etc.
Extraction of oil from seeds.
Ginning of Cotton.
Grading of wheat with grain elevator.
Grinding and crushing of corn, etc.

(7) Credit Societies for raising loans in the open market on the security of land, buildings, farm-machinery, etc., as described in Chapter XVI of this volume. These societies will solve also the problem of housing the people in villages as well as in towns and cities of India, on sanitary lines with moderate expense.

The agricultural organization in India may consist of—

(1) The Government Department of Agriculture,

(2) An organization of land-owners and agriculturists.

The Government Department of Agriculture and the Registrars of Co-operative Societies should take the lead and instruct* the agriculturists in matters where co-opera-

* This I notice is being done by the Government Department.

tive methods might be adopted, and assist the land-owners and agriculturists' organizations generally. The latter should have their societies and unions on the following lines :—

(1) A Central Association to direct the operations of the Provincial Associations of the whole country.

(2) Provincial Associations to deal with matters relating to each Province or Presidency.

(3) District Associations for each District.

(4) Tahsil or Taluka Associations for each Tehsil or Taluka.

(5) An Association for each village or a group of villages.

To the central body should be affiliated the Provincial Associations ; to the latter, the District Associations which should control the Tahsil and Village Associations in their own Districts.

The Central or Provincial Associations may occupy positions similar to those of the Danish Royal Agricultural Society or of the Irish Agricultural Organization Society. Advantage may be taken of the existing associations as far as possible, like the Land-owners, Association or the Agra Provincial Association of Zamindars, the District Boards, the Taluqdars' Association, or similar associations in the various Provinces, Districts, States, etc., in forming the Agricultural Associations of the people.

Where there is no organization at present or until such time as the people form their societies, the Government Departments may conduct the business connected with the breeding of cattle, etc., and help the organization of the necessary societies. The people must, however, be taught to realise the advantages of having these societies, by means of lectures, through text-books taught in the schools, leaflets, etc.

India is a very large country, and the conditions in the various parts of the country differ so materially that it is difficult to say whether unions of all the above kinds could be introduced successfully in one part or another. They are mentioned merely to serve as a guide in considering what might be done in connection with the

co-operative movement. Local conditions of each district must be considered fully before any attempt is made towards forming such unions.

Much of what is practicable in a small country like Denmark may not be possible in a vast country like India, with different climate, varying rainfall and religious prejudices of the people.

Great importance has been given in this volume to the improvement of cattle and milk industry. This is in special reference to the local requirements and inter-provincial requirements of India itself, though an export trade in milk products might be built up in time. The milk industry, however, needs important improvements in India, and Dairy Unions might successfully be formed in places where there are large herds of milch cattle and an abundant supply of fodder. But cheese-making dairies could be established only in the cold climate of the Himalayan regions. Systematic efforts should be made to improve the land races of the cattle and to produce the best stock of both milch and draught animals.

The tenor of para. 6, page xiii and para. 72, page 44 of the Report of the Committee on Co-operation in India would appear to be that the co-operative credit societies established under the auspices of Government are intended mostly for those who have no "realisable material assets to offer as security," where "the main security is the borrower himself and his sureties." Such persons, the committee found in many places, were paying interest at as much as 36, 48 or 60 per cent. per annum to money-lenders. In cases of this kind the committee remark that "a society may very well begin by charging 15 or 18 per cent. Those who can borrow at lower rates in the open market stand in no great need of the credit which a society supplies." Para. 16 of Government Resolution No. 12-287-1 of 17th June 1914, however, states that the security is primarily the character of the members and only in a secondary degree their personal or landed property. A loan to a member is sometimes made on the borrower's personal security only, but it would appear to be more common to demand one or two sureties. In provinces where there are records of rights in land the

amount of each man's property, and the encumbrances on it are easily ascertained, so that specific mortgages are less necessary. There is, however, no absolute rule against mortgages, and in some provinces, such as Madras and Burma, where land has always been pledged, this form of security is resorted to, and the fact that his property is mortgaged serves to emphasize the exclusive liability of a member to his society." Surely in cases where ample security in land or other immoveable property is offered, the rates of $9\frac{3}{8}$ to $18\frac{3}{4}$ per cent. per annum now charged by the Co-operative Credit Societies in India cannot but be regarded as high. The committee were "told in some places that ample money can be borrowed there from local money-lenders at 8 or 9 per cent. per annum or *even lower rates.*" The italics are mine. The Land Registration Records will no doubt confirm this fact. If land-owners are to derive substantial benefits from co-operation, they should have societies which would supply necessary credit at the cheapest rates obtainable. A better way for obtaining loans would be the formation of Credit Societies on the Danish lines, Chapter XVI, and the land-owners who have ample security to offer should certainly have such societies.

Denmark has a very accurate system of land records and registration, under which each man's property is so accurately described, with full particulars of every encumbrance upon it, that his assets and liabilities could be readily ascertained. The Danish Government issues certificates as to encumbrances or otherwise of properties at a charge of one krone in the case of small-holders and of 3·90 krones in the case of others.

These certificates greatly facilitate the raising of loans in the open market through the Danish Credit Societies, which are altogether of a different constitution to that of our Co-operative Credit Societies.

In Denmark agriculturists have no difficulty in raising loans, whether for long terms of 50 to 70 years or for short terms of one to five years upon the security of their land, buildings and agricultural machinery which make up their farms. They have a high credit and consequently the rates of interest are low, varying from $3\frac{1}{2}$ to 5 per cent. per annum. Sometimes these rates go up when the

money market is tight, but for working loans for periods up to nine months, the maximum limit laid down by the Danish Government is 5 per cent. per annum.

One of the prominent features of Danish Agricultural Co-operation is that it has divided up the work into so many self-contained departments, such as :—

(1) Dairying and joint sale of butter, etc.
(2) Bacon-curing and joint sale of bacon.
(3) Joint sale of eggs.
(4) Joint purchase of farm requisites.
(5) Joint sale of land produce, such as vegetables, hay, straw, etc.

It is not unusual to find one small peasant to be a member of several unions and associations, which perform for him distinct functions. The Danish peasantry are very well educated and can certainly manage their affairs with separate societies.

"Raiffeisen, beginning at the opposite end of the problem, having an impoverished peasantry to deal with, only sparingly equipped with business knowledge, and planning co-operation under a much wider aspect, of necessity proceeded on reversed lines. He would form one society only in every village to satisfy all the requirements of the population; *viz.*, credit, common purchase, common sale, common conversion of produce into more marketable shape, and whatever other service the prospect of further advantage might suggest, leading rather than following necessity, going in advance of compelling need, and meeting it half-way."*

Under conditions different from those that Raiffeisen had to deal with, such blending of everything may no doubt be open to objection. But within the limits of those conditions, his system has proved every bit as successful as the Danish. And even where all such conditions are not satisfied, it must be obvious that a combination of services is likely to prove advantageous. "The society which buys may also sell. The 'power'

*Agricultural Co-operation, by H. W. Wolff, page 8.

which moves the dairy machinery by day may well light up the village by night. The cart which fetches milk or carries butter may also bring home goods."*

The decision as to whether a certain place should have separate unions for each class or kind of business or a common union for all requirements of a locality depends upon the prevailing conditions. Where there is enough of work for separate unions, it is very desirable to follow the Danish practice in preference to that of Raiffeisen.

The conditions upon which the business of a co-operative society should be conducted should be as simple as possible. In the first place it should be expressly laid down that no risk whatever should be incurred, no speculation entered upon, but that all business taken up should be kept perfectly safe. It must be borne in mind that co-operation is intended for a common service, not for personal gains.

The members of a society should be compelled to take an active part in watching the business and satisfying themselves that it is conducted on the prescribed lines. To ensure this every member should have an equal vote, and should have means open to him for ascertaining what has been or is being done and for taking the opinion of his fellow-members upon it.

The Directors should be selected for their fitness from among those willing to join the management. They must hold honorary offices without any remuneration except for travelling, where actual expenses might be reimbursed. Persons who undertake the management on such a governing body ought to be content with acting for the satisfaction of rendering a common service.

So long as reliable firms of auditors are not established, it is best to have the services of Government auditors. A sound audit of accounts of co-operative societies is absolutely necessary, and to help these societies, especially at the start and for at least a decade, Government should provide a competent staff of auditors free of charge to the societies. State auditors on railways in India have been

* Ibid, page 8.

found very useful, as is evident from the fact that shares of Branch Railway Companies of India are accepted as perfectly sound, while the same reliance is very rarely placed upon the shares of Joint-stock Companies, whose accounts are not subject to Government audit. What is required is to guard against auditors being influenced in any way by the managing staff. If private auditors could be trusted in this respect, there would be no objection to employing them for the Co-operative Societies.

Indians are accustomed to co-operation in several kinds of agricultural work; for instance, the handling of sugar-cane crops which, in the United Provinces of Agra and Oudh, farmers combine to jointly gather, press and convert into ráb or jaggery, by turns, one day in the week being allotted to each farmer joining the Union. This sort of co-operation does not go so far as the Danish co-operation in the case of milk, but it is very much like the Italian co-operation of olden days.

In former days the caste system among the people supplied the necessary requisites for co-operation. Different trades and different industries were divided among certain castes of the people who, from their very birth, moved to develop the necessary qualifications for the hereditary trade or business activities. Now the caste system is very much shattered. It is kept up only in inter-marriages, and inter-dining to some extent. For business or trade members of different castes work together; only some of the artisan classes now follow their hereditary occupations. Whether caste trades and industries should be strengthened or broken up is a very serious question and demands an exhaustive consideration.

A large majority of the people are still clinging to their castes, as is evident from the many caste conferences held annually in various parts of India. It is easier to repair a standing structure than to demolish it and attempt to construct a new one on new foundations and new lines altogether.

As, however, members of almost each caste follow different pursuits of life, one of the essentials of co-operation (common interest in a common business) does not now exist among the various members of a caste, nor is it

practicable to persuade the people to abandon the occupations they are now pursuing. The element of caste may therefore be left out in arranging co-operation among the people. Co-operation should, however, be introduced among the workers in the same kinds of business. Whatever castes strictly follow the hereditary trade or line of business, they may be persuaded to strengthen their unions and to follow the up-to-date principles of co-operation.

Those castes whose members follow different occupations should allow their members, as they do at present, to co-operate with the members of their respective occupations. Caste unions may, however, continue for purposes of inter-marriages, but the Co-operative Unions should be among workers in the same kind of business without regard to the caste or castes to which such workers may belong by birth.

The times have now considerably changed, and new institutions and ways of life have been introduced. The world has become materialistic, and great strides have been made in the material concerns of life in Europe and America. Since the introduction of railways India has come in direct intercourse with those countries. Its produce and supplies are exchanged with the rest of the world. The prices of necessary commodities in India are now to a great extent governed by the world influences ; it cannot now live in an isolated manner as in the olden days. In order to maintain its position, it must adopt similar methods as are in vogue in other countries with which it has to compete, and to take lessons from them even in those matters in which it has no competition.

The methods of co-operation which are advocated here are intended not for purposes of competition with agriculturists in other countries ; on the contrary, they are to help them by checking such competition which by undue reduction of prices in India may have adversely affected the agriculturists in other countries. The main object of introducing such co-operation in India is to enable its farmers to earn a fair return for their labours, as they are at present losing through ignorance and want of a proper organization.

In India the benefits of modern co-operation are hardly understood at the present time. In fact very few know any-

thing about agricultural co-operation beyond the Co-operative Credit Banks and Societies which have been started under the auspices of the Government of India. It is more than probable that the advocates of this movement in India will have serious difficulties to encounter before co-operative institutions of the nature they have in Denmark will find a footing in India.

In all countries farmers are difficult to move. Belgian and Italian Ministers have long openly bewailed the distrust which was clearly observable among their peasantry. It has taken a long time even to rouse German farmers to an appreciation of the new methods. In France it has needed much Government prodding and many Government benefactions to produce an agricultural co-operative movement. The very Danes, who are models in the matter for all the world, have taken to Co-operation only as necessity urged them. Step by step they have advanced. Dairying, first in the place of corn-growing, pig-rearing, bacon-curing, egg-raising. Every new departure was forced upon them by a Diomedean necessity.*

India has similar necessity owing to the exteme poverty of peasantry and the unremunerative condition of the agricultural industry generally in most of its Provinces. Their salvation lies in co-operation. and sooner or later they must adopt it, as so many other nations of the world have done.

A great drawback in India is that most of the business is done on individualistic lines, whereas in Europe most of the business is done on communal lines. In India each house does all its domestic work from beginning to finish, whereas a large number of articles prepared for the commune are used by individual houses in Europe. Similarly, each individual farmer in India disposes of his produce himself, whereas Danish farmers sell their produce jointly, thereby avoiding losses usually caused by unnecessary competition. To adopt the Danish system of co-operation we must abandon our individualistic ways and adopt communal lines wherever practicable. This is a necessary adjunct to the adoption of Danish co-operation. By this means the people will more easily learn the advantages of joint working.

* H. W. Wolf's "Co-operation in Agriculture," page 6.

There is a vast amount of work to be done among the people before they will appreciate the reforms advocated. Herein almost all European countries had such difficulties at the start, but by persistent endeavours they have overcome them. There is no reason why we should not similarly succeed. Our cause has great merits and is bound to succeed if we work strenuously. In a cause like the uplifting of our masses no efforts are too great. Likewise the reward will be a great one. Our work must be among the people, as the Government is ready to do its part.

The duty lies upon every one of us. We must save our masses, especially the agricultural masses, who are the backbone of India. Our Government realise this and is doing everything in its power to save the agriculturists. Now awakening is needed among the land-owners and others generally, whose interests depend greatly upon the well-being of the agricultural masses.

Some of our friends think that it would not be possible for the agriculturists of India to raise the prices of their produce simply by forming Co-operative Unions, unless they create new markets. This would no doubt be true if agriculturists were selling their produce strictly according to the law of demand and supply, or their present prices were cut down to the last farthing under an open competition; but such is not the case at least with the Indian agriculturists, who, as explained in the preceding paras, sell their articles arbitrarily to dealers, who make large profits before they sell to consumers. In the first place it is not intended to raise the prices generally against consumers, who would no doubt buy at about the same rates as they pay through the middlemen. In case they might have to pay a little more in cases in which it may actually be found that agriculturists are losing, it is hoped consumers would not grudge to pay reasonable prices to the hard-working farmers. What is claimed for Co-operative Unions is a remunerative business, without unduly pressing hard on anybody. Instead of the arbitrary manner in which bargains are made by middlemen at present, the prices would be regulated under an intelligent management of representatives of all concerned in the production and sale of the

commodities for which unions will be formed. Under such management it would not be possible for middlemen to make undue profits on agricultural produce. On the contrary, the profits now made by the middlemen will be shared by producers and consumers, and the prices of articles co-operatively produced will be cheapened to the lowest limit possible.

The trading classes need not be afraid of losing their business upon formation of Agricultural Co-operative Unions. With the prosperity of agriculturists, the trading classes would have larger business with agriculturists. It would of course be in other kinds of trade than in agricultural produce, as most of their trade in Indian towns at present is. As agriculturists are real producers of wealth and form the backbone of India, it is more than probable that in their prosperity, all classes of the Indian people would share directly or indirectly.

Nor need the general public have any apprehensions in this matter. Prices of some articles may go up, but for the chief articles produced by Co-operative Unions on a systematic basis, the prices would be cheapened, and consumers would certainly have the benefit of such cheapness. Look at the price of milk in Denmark. With all their costly machinery, high standard of living and high cost of labour, the average rate for milk obtained by Co-operative Dairies during the year 1912 was only about $1\frac{1}{4}$ anna per seer of 2 lbs., against 2 annas per seer in towns like Ajmer, and 5 annas per seer in Bombay.

Up to the middle of the 19th century, farmers of Denmark gave most of their attention to the production of wheat and the cattle were utterly neglected, as is exactly the case in India to-day. Their lands had become impoverished owing to excessive growing of wheat, and consequently their crops were deteriorating except where large quantities of manure were used. The Danish peasantry was consequently in a precarious condition. All those conditions we find in India to-day. Attention to improving the breeds of cattle in Denmark began with the introduction of Co-operative Dairies and the Centrifugal Cream Separator. These Dairies began with large profits to the farmers who joined them, and this gave a general

impetus to the milk industry, which now forms 67 per cent. of the total agricultural produce of Denmark. Farmers who had no cows sold their crops to buy cows, and the aim of each farmer has been, before anything, to develop to the greatest possible extent the milk production of his cows. The success of this business is largely due to the fact that Denmark has ready markets in England and Germany.

India is *par excellence* the country of the Mother land and the Mother cow. The value of both is highly appreciated. The veneration paid to them is on account of their productive power and economic value. Somehow the people of India have lost sight of this economic side and are neglecting it. In Denmark great pains are taken to improve the breeds of their cows. In fact Danes maintain the real instincts of the ancient Aryans in this respect. The prosperous condition of Denmark is entirely due to the care taken of the cow. The whole of the agricultural produce is given to the cow, and most of the income is made out of the milk she gives. Even bacon, which stands next to butter in the volume of Danish trade, is fattened with skim and butter-milk. Practically the whole of the Danish trade is due to the cow. Ever since the Danes set their mind to the improvement of the cow, they have been improving their position. And to-day, though a small nation of about 27 lakhs of persons only, they are considered to be the richest amongst the agricultural nations of the world.

Conditions in the different parts of India are, however, so different that all Danish methods in connection with its milk industry cannot well be adopted all over India. The milk and butter supply for local and inter-provincial requirements of India are badly in need of improvement, and markets for milk products outside India may as well be created or expanded.

The land produce in India consists chiefly of—

Grain and seed.
Cotton, jute and silk.
Sugar and tabacco.
Fruit and vegetables.
Live-stock.
Milk and wool.

It is not the object of this book to deal with scientific methods of agriculture, horticulture, sericulture or breeding of live-stock, although such methods are badly needed in India to improve and increase the output. Agriculture in India is conducted generally on primitive methods, while the breeding of live-stock and production of wool are carried on in a very indifferent manner. The supply of milk and butter is diminishing day by day, and cattle-stock is deteriorating in breed both for plough work and for milk. The growing of fruits and vegetables is not done on systematic lines, nor is any attempt made to dry and preserve them on a commercial scale. The first and foremost need of Indian agriculturists is to improve the breeds of their cattle. India as a non-meat-eating country needs larger supplies of milk and butter, and possesses some excellent breeds of cattle, which yield large quantities of milk and produce powerful stock for plough and for water-lifting, both of which are so essential in Indian agriculture. Indians have a reverential affection for the Mother cow, which is regarded as कामधेनु (kamdhenu), giver of all that one desires. It is a pity that these very Hindus who in their heart of hearts have such a deep regard for this animal of attractive beauty and unlimited wealth of strength and vigour, have so grossly forgotten the necessary care and feed of their cattle. It has been truly said that countries possessing healthy herds of cattle enjoy prosperity and all blessings.* Should not Indian agriculturists follow the example of Denmark and adopt the raising of milch and plough cattle on a much larger scale than they do now, and set apart a large area of their plough lands for the feed of such cattle as the Danes do? They should form unions for breeding their live-stock and for testing the milking powers of their milch cattle; as described in Chapters V and VI of this volume.

Like India, Denmark is an agricultural country. 59·75 per cent. of the people in Denmark and 71·69 per cent. in India have agricultural industries for their subsistence.

* गावश्च बहुलास्तत्र न कृशा न च दुर्बला ।
पयांसि दधि सर्पींषि रसवंति हितानि च ॥
महाभारते विराट पर्वे २८ अ० २३ श्लो० ॥

The main difference between the two countries is that India is very much behind Denmark; it is much in the same backward condition in which Denmark was about 50 years ago. Although there is a vast difference in the general culture and lives of the two nations, still by the same nature of its main industry, India can to a very great extent follow the lines of Danish co-operation with great advantage to itself, without causing any harm to any other nation.

In the matter of growing too much corn and neglecting milch cattle and milk products generally, India stands in the same condition in which Denmark was in the sixties of the nineteenth century. The methods which Denmark has adopted to improve its position are equally adaptable in India, and the details of Danish methods given in this volume are thoroughly practical and can be adapted to suit Indian requirements.

India, it has been said, is the country of the Mother cow and the Mother land. Both are held in high veneration by all classes of Hindus. Their downfall is greatly due to their neglecting both these great producers of wealth, and consequently they have become so helplessly poor. Now by the lessons which Denmark has for India, Indians can by taking them to heart re-acquire their lost wealth and their lost position in the world.

The trades of India which, among the figures of the recent years, was the highest during the year 1913-14, aggregated as under :—

Imports	...	...	Rs. 183,24,79,000.
Exports	...	...	,, 2,44,22,15,900.

On the population of 313,493,215 it worked out to about Rs. 6 and Rs. 8 per head respectively, against Rs. 222 and Rs. 179 per head in Denmark. This alone shows that the activities of the Danish people are some scores of times greater than those of the Indians.

The fact of Denmark having more imports than its exports shows that it is rich enough to pay in cash for the excess in its imports; while India is so poor that it has to work for cash for foreign countries. Other countries work for Danish money, while India serves foreign countries partly for cash and partly for finished articles,

which, in many cases, are made out of its own raw materials. The worst feature in the case of India is that it exports a large bulk of its raw materials at low prices, while it imports finished goods at high prices. India suffers seriously from this state of affairs. Owing to the low prices of its produce the people have to work for low wages and low salaries, except the high officials of Government, who draw salaries, the rates of which are many times greater than those allowed in Denmark and other European countries As prices in India are going up under the world influences, the wages and salaries of the people are also rising, but slowly. The adjustment in them is slower than the rise in prices, because the people cannot in the open market find a better-paid work, owing to the absence of industrial works and of the industrial training of the people. Unskilled labourers and clerks are more than required for the work available, and consequently their wages are very low in comparison with the rates prevailing in European countries. These people are forced to accept whatever wages employers choose to offer, and in a majority of cases the rates are so low that the workers cannot have even the necessaries of life. Some of them, especially those in clerical lines, draw upon their ancestral savings or pass a miserable life. An improvement in their condition is urgently called for, but it cannot take place until India makes an appreciable progress towards establishing more industrial works and towards giving industrial training to its youth on an adequate scale.

Denmark does not suffer in this manner. As its exports consist of *finished* articles which go at normal prices, its people maintain a normal standard of wages and life; whereas the workers in India live in mud and grass huts and on the lowest standard of comfort in the world. If India sent out its produce in a finished form it would get better prices and would have better wages for its workers. As the prices in India are now governed by the world influences, and the people have to buy most of their requirements at the world rates, there is no reason, except want of proper employment, why the wages of workers in India should be about eight times lower than those in Europe.

The exports from Denmark consist of butter, bacon, eggs, meat and live-stock. Most of its agricultural produce

is converted into these articles. Instead of exporting, Denmark imports grain, oil-cake and manures from foreign countries.

As far as possible agricultural produce may not be exported in a raw or unmanufactured state. Exports of agricultural produce should be in manufactured articles or in articles which could be consumed in a natural state. Manufacturing work should be done in the country so as to retain the chaff, oil-cakes and other coarse bye-products for use in the mother-land for the benefit of the people, cattle or soil.

Our agriculturists are absolutely ignorant about the value of land-fertilizers. They allow bones of their dead cattle to be carried away by any one who cares to pick them up, without any consideration whatsoever, and these very bones are taken by dealers for export to distant countries. The following are the figures of exports of bones and bonemeal from India to foreign countries :—

		Tons.	Value.
1912-13	...	110,000	Rs. 78,86,000
1913-14	...	105,000	„ 78,33,000
1914-15	...	64,000	„ 47,93,000

It is well known that our agriculturists are ignorant. Should not those who know better take some steps to stop this wholesale removal of soil-wealth from India? No wonder our soil is getting poorer day by day. Bones of dead cattle in the writer's early days, up to the seventies of the last century, were allowed to lie over in heaps in Indian villages. The bones, as they gradually decayed, supplied necessary nourishment to village lands through various sources, and the soil received a return for what it gave out in the shape of crops. Now all that nourishment is lost to the soil, while owners of bones get no return whatsoever.

The bones should be properly taken care of, crushed and distributed among the agriculturists, under the direction of their Co-operative Unions. In this connection attention is drawn to the article in "Indiaman," by Sir Thomas Holland, a summary of which was cabled to India on the 14th January 1916, where it was stated that the export of bones causes a serious annual loss to India, which

is deficient in the supplies of mineral phosphate. The bones exported represent an annual removal of 22,000 tons of phosphoric acid, while the grain exported represents a loss of 25,000 tons; but while the bones are worth half a million pounds only, the grain is worth forty million pounds sterling.

Cotton is one of the most valuable products of Indian agriculture and has a vast field for an industrial development, which will find employment for millions of people in the country, with large profits to agriculturists and capitalists. A time will come when people of both these classes will combine and establish cotton factories on co-operative lines similar to those followed in Denmark in connection with Dairies and Bacon Factories. The cotton factories may include the ginning and the pressing of cotton, the extraction of cotton-seed oil and disposal of hulls and oil-cake, also the spinning of yarns and weaving of cotton fabrics; all these on co-operative lines on behalf of the agriculturists.

India is a very large country, as large as the whole of Europe minus Russia. What is practicable in a small country like Denmark may not be possible all over India. The trade conditions of the two countries are different. Denmark has markets for its milk, cream, butter, and cheese, while there is no such market outside India for Indian milk products.

Then the rainfall in the various parts of India varies considerably, so that large herds of cattle cannot very well be maintained in parts like Rajputana, where cattle are frequently affected by fodder famines.

The climate in the plains of India is very different to that of Denmark. India in the plains can grow a winter crop as well as the summer or rainy crop, whereas Denmark can raise one crop only in the year. The plains of India need artificial irrigation for their winter crops, while rains are ample for the summer crop in Denmark. On the other hand labour in Denmark is nearly eight times more expensive than in India. Some parts of India are served by irrigation canals, whilst other parts have to incur heavy outlay in sinking wells and lifting water from such wells. The Danish climate is somewhat like that of the mountainous regions of the Himalayas, where cheese may be made largely for export out of India.

The soil of Denmark does not appear to be so fertile as that of the Panjab, the United Provinces of Agra and Oudh or Guzerat. But Denmark has an advantage in the matter of rains, which entirely nourish the land crops in that country, while India has to feed its crops with water lifted from 30 to 100 feet from under-ground or brought by irrigation canals, which are provided in a few tracts only. The disadvantage of India is, however, covered by the fact that it can grow two great crops in the year viz., the winter crops (Rabi) as well as the rainy crops (Kharif), while in Denmark the winter crops are not possible and they grow summer crops only.

In the matter of agriculture what Danes have achieved is equally possible, though many of the prevailing conditions and habits and customs of the people materially differ.

Indian agriculturists are as hard-working as any other nation in the world. They can stand the Indian climate splendidly.

This work has no pretensions to treat the matter of scientific agriculture. Agriculture in India has to be improved by the use of machinery and improved implements which save manual labour, but every cultivator in this land cannot afford to buy these articles. In agricultural skill the Indian agriculturist is, however, second to none in the world, as may be gathered from the following opinion of the late Mr. A. O. Hume, C.B., who was for a long time in the Agricultural Department of the Government, as recorded in a paper which he wrote in July 1879 on Agricultural Reform in India :—

"So far as rule of thumb goes, the experience of 3,000 years has not been wholly wasted. They know to a day when it is best (if only meteorological conditions permit) to sow each staple and each variety of staple that is grown in their neighbourhood ; they know the evils of banks and hedges dwarfing the crops on either side and harbouring vermin, and will have none of them, they accurately distinguish every* variety of soil, and so far as the crops

*Nothing, indeed, is more perplexing than the enormous number of names applied by native agriculturists to soils, the more so that probably almost every district rejoices in at least a dozen purely local names which are unknown elsewhere. There is no real confusion, however. Native cultivators as keenly appreciate the smallest differences in the relative qualities of different soils as do the best European farmers,

they grow are concerned, the varying properties and capacities of each; they fully realise the value (though they can command but little) of ordinary manure, ashes and the like, and recognise which are most required by which kind of crops; they know the advantages of ploughing, in most cases as deep as their imperfect implements and feeble teams will permit, and of thoroughly pulverising the soil; and they also recognise where, with a scanty or no supply of manure, it would be folly to break the shallow-lying pan. As for weeds, their wheat fields *would*, in this respect, *shame ninety-nine hundredths of those in Europe*. You may stand on some high old barrow-like village site in upper India, look down on all sides, on one wide sea of waving wheat broken only by dark-green islands of mango groves, many, many square miles of wheat and not a weed or blade of grass above six inches in height to be found amongst it. What is to be spied out creeping here and there on the ground is only the growth of the last few weeks, since the corn grew too high and thick to permit the women and children to continue weeding. They know when to feed down a too forward crop; they know the benefit of, and practise, so far as circumstances and poverty permit, a rotation of crops. They are great adepts in storing grain, and will turn it out of rough earthen pits, after twenty years, absolutely uninjured. They know the exact state of ripeness to which grain should be allowed to stand in different seasons; in other words, under different meteorological conditions, to ensure it keeping when thus stored; and equally the length of time that, under varying atmospheric conditions, it should lie upon the open threshing-floor to secure the same object.

"Imperfect appliances, superstition, money troubles and

but the fact is that independent of names indicative of the quality of the soil (and often to the entire exclusion of these) they make use, in describing their land, of names having reference to external conditions, the frequency or recency of cultivation therein, its situation as regards inhabited sites, etc., its position as upland or recently-formed alluvium, its occupation for pasture, fields, or gardens, its external features, etc., etc. Nothing is more common than to hear soils referred to as such, by names which really only indicate features or circumstances altogether external to the soil itself and independent of its intrinsic quality. This is no doubt inaccurate, but it is very natural since the value to the agriculturist of any land will often depend far more on these external circumstances than on the inherent quality of the soil, which latter, moreover, will, as time goes on, be often greatly modified by the former, as where "*bhoor*" or light sandy soil, becomes in course of time, by proximity to a village, constant cultivation and manuring, a kind of "*do mut*" between garden mould and rich loam.

the usurer's impatience, often prevent their practising what they do know, but so far as what may be called non-scientific agriculture is concerned, *there is little to teach them, and certainly very few European farmers could, fettered by the same conditions as our ryots, produce better, if as good, crops.*"

The italics are mine. In the same note, Mr. Hume stated that as the result of scores of careful personal experiments carried out in the Allyghur, Mynpooree and Etawah districts fourteen bushels of wheat was an average yield for good fields, while the Ain Akbari gives nineteen bushels as an average yield in those days.

The recent enquiry made by the Governments of India regarding the rise of prices has established the fact that "the expansion of communications and the lowering of the direct and indirect cost of transport have tended to bring up prices of agricultural produce of India, relatively, to the level of the price of the same articles in Western Europe, and to bring up the prices, in upland districts of India, relatively, to the level of prices at the ports."

The report adds that "so far as India is concerned the rise of prices is likely to continue for some time to come." (Page 189 of Volume I of the Report).

The people of India complain of the rises which have already taken place; but sooner or later the world influences will assert themselves and have their full effects, raising the prices in India still higher, and even in those cases in which an appreciable rise has not taken place we should be prepared to keep such effects down.

The remedy is the formation of Co-operative Unions and adoption of economic appliances to cheapen the costs of production. Now these measures are practically forced upon us since we are in direct communication with the rest of the world, and in order to maintain our position we must adopt the best methods of business followed by the scientific world. In this matter co-operation is sure to prove an instrument of great economic value.

The present war in Europe has given us opportunities to improve our industries, and we can do this more efficiently and economically by co-operation than otherwise.

Some of the well-wishers of India are of opinion that India should first improve its agriculture and then look to its manufacturing industries. In theory this seems right, but Indian agriculturists are not totally ignorant of their agricultural skill; they have the experience of thousands of years at their back, and in non-scientific agriculture they are second to none in the world. They are seriously handicapped by their poverty, they need money to buy their equipment and to be free from the worries which their constant indebtedness causes them. At this stage both agriculture and manufacturing industries of India should be pushed on simultaneously. For the betterment of their economic condition their income should be augmented. This is practicable by improving both agriculture and manufacturing industries by co-operative methods. Manufacturing industries have a larger margin of profit than agriculture alone as it is carried on at present, and they should not miss this opportunity of making those profits for themselves.

There is a great future for India. By general co-operation of the people and the Government, we can make this land as prosperous as any other country in the world. We have great resources in our strong sun, in our great rivers, in our great mountains, and in the rich fertile soil of the plains. Our strong sun is a great fertilizer, while our rivers bring down an abundant supply of water and rich alluvial soil. The numerous rivers which discharge their water into the ocean could be utilized to far greater advantage than hitherto in irrigating cultivated areas of land, while water-falls, and the strong streams, both on the mountains and in the plains, could be used for water-power installations for working factories of various kinds, for working some of our railways and tram-cars, for lighting our cities and towns, and for numerous other purposes, while the fertile slopes of the Himalayas can accommodate any surplus population of the Indian plains. Numerous factories could be established for the production and manufacture of wool, silk, paper, pulp, etc., and the mountain slopes could be beautified by fruit gardens, and house buildings as are seen in Italy and other European countries. All this can be accomplished by the general co-operation of the people and the Government.

Co-operation is bound to bring prosperity among the agricultural classes who will join co-operative bodies. In their prosperity all other classes in the land will share. In Denmark Co-operative Societies did at the start affect middlemen to a certain extent, who at the outset offered some opposition to the new movement. But as co-operation is based upon solid principles, it has flourished and succeeded in getting over that opposition. And now they have no opposition whatever; on the contrary, those old opponents have found new business for them, stimulated by the prosperity of the agriculturists, and have become great advocates of co-operation.

The bed-rock principle of co-operation is honesty, which alone can create and maintain mutual trust, so absolutely necessary for co-operation. Members who send their produce for sale through a union must be scrupulously honest in keeping their supplies pure and to the specified standard. Without their fulfilling this initial condition no combination is possible.

For working the unions necessary rules and safeguards can be laid down, but honesty among the managing staff is also necessary. To instil the need of honesty among the people, the public schools must take the lead, and demonstrate to their pupils that the prosperity of a nation depends upon this one great virtue; सत्यमेवजयते नानृतं is our Vedic motto. It means that truth alone achieves victory, not falsehood.

Dishonesty is due more or less to poverty, which true co-operation will successfully destroy. Once this cause, mother of all ills and evils, is removed, honesty and other virtues necessary for co-operation are sure to come in.

Co-operation professes very lofty aims. It is to extend education, raise moral tone, create a bond of identical interests, uniting men with men.

By extending the principles of co-operation to various branches of agricultural industries, we will certainly strike at one of the causes of poverty among the Indian agriculturists. Upon the prosperity of agriculturists depends the prosperity of most of the people in the country. No one need be afraid of any evil arising out of Co-operative

Unions. Even traders who might lose some of the business they are doing at present, will have larger trade with agriculturists in other directions when the agriculturists are in a prosperous condition, while the general public will gain immensely by the cheapening of food-stuffs under co-operative management. It is therefore a duty of every one of us to help our agriculturists in their present difficulties.

In his excellent work on Agricultural Co-operation Mr. H. T. Wolff says: "The rural portion of the countries affected by agricultural co-operation has been transformed and raised to higher productive efficiency. The agricultural classes and the entire country have grown the richer, and the men practicing such co-operation have been transformed as well. There is a remarkable educating power in co-operation which makes men think, calculate, study, and which trains them for business. It quickens the march of civilization, while hastening the growth of population. It sharpens wits and awakens intelligence."

In his evidence before the American Commission, the Hon. Lingi Luzzati of Italy said "that the Co-operative Unions which arose without capital, rich only in their invisible treasure of mutual trust and human solidarity, are the fruit of the modest unrecognised virtues of the country-folk, bound together by bond of mutual affection, who assist and watch over each other with the subtle vigilance of neighbours; and these humble folk, void of economic lore, have acomplished a miracle—the miracle of creating capital out of nothing."

This miracle was due, he continued, "to the fact that a moral and not a material impulse guided their work. They have succeeded in coining their simple good faith and their honour, and in transforming into concrete credit—so rebellious to all idealistic considerations—promises of payment guaranteed only by their obscure immortal souls, and now in European countries, the business transacted by these unions, founded without capital, and which have laboriously built their own reserve funds, amounts to several billions each year, and they represent the billions of agrarian poverty."

Honesty, industry and labour capacity are their capital which by mutual trust and joint efforts they multiply to

unlimited extents. Honesty, industry and mutual trust are the initial elements of co-operation. Co-operation is a combination of persons, not of capital—and of persons working in a like concern. In the reply to the address from the Delhi Municipality, His Imperial Majesty, our King Emperor was graciously pleased to say that "if the system of co-operation can be introduced and utilized to the full, I foresee a great and glorious future for the agricultural interests of this country." And in the reply to the Calcutta University, His Majesty impressed upon us that "it is through education" that Indian subjects of His Majesty "will be able to hold their own in industries and agriculture and all the vocations in life," and will have their "homes sweetened with a higher level of thought, of comfort, and of health."

Education and co-operation are indeed the panacea for many of the ills and evils of India. Let us therefore take these golden words of His Imperial Majesty to heart, and there is no doubt that this land, with her connection with the Mighty Britain, will in due course occupy its proper place among the nations of the world.

APPENDIX I.

Construction and Working of Danish Co-operative Dairy Societies.

Articles of Association.

1. We, the undersigned proprietors of milch cows in the..... and neighbourhood, declare hereby that we have united ourselves to establish a Co-operative Dairy, to be known by the name of....., and bind ourselves hereby as shareholders in the same, by an undertaking duly signed by us, in accordance with the minutes agreed to by the provisional committee, for a period of ten years, to deliver to the proposed creamery the milk of the whole number of milch cows which at all times we may have in our possession, with the exception, however, of the milk which might be required for household purposes, as well for our own as for other households in our own district.

2. The shareholders in the creamery are those who, before the day of.., by their names signed to the properly authorised minutes, have bound themselves to deliver the milk of a certain number of cows. The creamery shall be the property of the members of the Society in such a way that every member has ownership in proportion to the value of the milk he or she respectively delivers in a given period of time to the creamery, compared with the whole amount dealt with in the same time.

3. Owners of milch cows, who at a later stage may desire to join as members, can be elected when the subscription and payment per cow corresponds to the amount which at the time he happens to join is paid off upon the debt of the creamery, besides a premium of 10 kr. per cow for each of the cows for which he signs a guarantee. However, in case of exceptional conditions, the consideration of the admission of a member may be dealt with by the Committee otherwise than in accordance with this rule, or a general meeting may make a special exception in any particular case.

4. Should any member desire to withdraw before the termination of the first ten years from the establishment of the creamery, he must pay to the Society 20 krs. per cow when the withdrawal occurs in the first year; if the withdrawal occurs later, then he shall pay 2 kr. less per cow for each year which has passed since the establishment of the creamery. Members who withdraw cease to have any further interest in the Society. Members desiring to withdraw after ten years are paid out such share in the creamery estimated upon

the basis of half the value of the whole concern, according to what a general meeting shall decide his share to be. When a member dies his representative assumes the same rights and the same obligations according to the length of the period the membership has existed. Any member who sells or otherwise disposes of his property or personal effects before the expiration of the first five years can have no share claim. After the expiration of this period he may claim the payment of half of his share, as set forth in rule 2, as the right of a member. The new owner of such member's property can assume the seller's privileges in the Society, against which the seller's claim on the Society disappears.

5. The milk must be delivered in a clean and unadulterated state, without disagreeable taste, and will be paid for by the creamery in such a way that for every 32 lbs. of milk delivered, payment will be made according to the Copenhagen quotation for one pound of butter, and the average amount of fat in the milk is controlled and calculated according to the indications of the testing apparatus in the creamery. Examination of milk is made as often as the creamery finds it necessary, as well as frequent testing, which must take place at least twice a month, and always in the presence of a member of the committee. For the milk delivered by the supplier, 90 per cent. by weight of separated and butter-milk together will be delivered to him free of charge. After the milk is separated in the creamery it is heated to about 70 degrees centigrade before being returned to the suppliers. The committee reserve the right to make such alterations in the quality of butter-milk returned from time to time as they think desirable.

6. The members are bound to keep the milk cool when it is not called for immediately after milking has taken place; two milkings must not be mixed, as this seriously interferes with the successful making of butter at the dairy. Milk immediately after being drawn from the cow must be strained, and must not be allowed to remain in the stall in which milking takes place. Milking should preferably be performed with dry hands, the udder and teats being carefully cleaned. Adulteration of milk is punishable with a fine of 10 kr. per cow to the Society, to compensate for the serious damage which such practices bring upon the whole district. In case of refusal to pay this fine, the farmer sacrifices all his property in the Society. Should adulteration be continued without the shareholder discovering it, the loss is one which must be borne by the entire locality, and the guilty member must feel that he is instrumental in injuring all his neighbours, as well as himself.

7. Milk of a cow must not be delivered at the creamery until three days after calving; the milk of a cow suffering from any disease can only be delivered when accompanied by the certificate of a veterinary surgeon.

8. In the event of an outbreak of a contagious disease, milk must not be delivered from the farmstead so affected, except when

such provisions are made as will effectually ensure the sound condition of the milk, and unless such milk is accompanied by the declaration of a medical officer that there is no danger of infection.

9. The suppliers of milk shall be charged with the cost of transport to the creamery. Milk vessels must not be made of wood, and must not contain over 80 lbs. milk each; the milk is weighed in and out on the weighing machine at the creamery, and these weights shall be final. Milk which is sour, adulterated, or which arrives at the creamery in cans which are not thoroughly cleaned, shall be rejected.

10. The milk shall be conveyed to the creamery in hired vehicles, in accordance with an arrangement made by the Committee, but it shall be referred to the first general meeting to decide whether waggons for the purpose of collection shall be purchased, or whether the work shall be undertaken by contract. A plan of the district is prepared by the Committee, and along the main road indicated on these plans the milk waggon shall travel, and all suppliers are bound to deliver their milk at these roads; exception to this rule is made, however, when the milk supplier's house is not more than 1,000 feet from the main road, and when such suppliers sign a guarantee to deliver at least 100 lbs. of milk per day. Should groups of suppliers live a considerable distance from the main road and unite together to cart their milk, they will receive such allowance as would ordinarily be made to the creamery for such cartage.

11. In winter each cow must receive at least 1 lb. of rape cake and 2 lbs. of bran or oats. If oil cake is used it may be given in equal quantities with rape cake, but it must not replace the latter. In case any particular food interferes with the quality of the butter at the creamery, the Committee have the right to demand that such feeding stuff be discontinued. The use of turnips and kohlrabbie and other foods, must be in accordance with the instructions issued by the Committee, who always reserve the right to make a special provision for the feeding of milch cows on any particular farms whenever they think necessary.

12. The Committee undertake the erection of the creamery, provide its buildings, machinery, and implements, and have a right to obtain a loan sufficiently large for the purpose of building, plant, and working capital, and this loan must be guaranteed by the members of the Society, each in proportion to the number of cows the milk of which he has already guaranteed. The first claim upon the whole profit of the Society shall be the loan thus obtained, in which the shareholders shall have rights in proportion to the number of cows for which each has signed in his application for membership; and in case any member becomes insolvent, such an amount as may thus become chargeable to the Society shall be allocated to all the other members also in proportion to their number of cows. The preliminary expenses and necessary travelling expenses incurred by the Committee shall be paid.

13. The profits of the Society, after payment of instalment on loan, and after allowing for depreciation of building and plant and providing for a reserve fund, shall be apportioned to the members in accordance with the quantity of milk each has delivered. The allocation shall take place quarterly.

14. The supreme authority in all the affairs of the Society shall be the general meeting of the members, at which every shareholder in the Society has a vote, without reference to his number of cows. The general meeting decides all ordinary business by a simple majority of votes, but when an alteration is proposed in the rules, or the dissolution of the Society is being considered, three-fourths of the members present at any general meeting must vote in its favour. Ordinary general meetings take place half-yearly, in May and November, and eight clear days' notice, with a complete agenda paper, must be delivered to each member. Members may bring any matter they choose before a general meeting, provided notice is given in writing and particulars of the proposed matter for discussion to the chairman of the Society before the end of the month of April and October, respectively. Extraordinary general meetings are held as often as the Committee think necessary, and at any time may be called on the requisition of twenty shareholders. Women may vote at general meetings, provided they are registered shareholders on the books of the Society.

15. The daily accounts of the business of the Society shall be kept by the Manager, who shall record the delivered weight of each supplier's milk in the creamery's books, and shall also insert it in the pass books of the suppliers. The supplier's pass book and the "milk received" book at the creamery must be compared at least once weekly. An account must be kept at the creamery of all the sales and purchases daily. At the same time the Committee have the power to appoint a visiting auditor or accountant, who will examine the books monthly and report to them. Such accountant must not be a member of the Society. The chairman of the Society is responsible for all money received and for all money paid out, and must take such measures as are necessary at all times to protect the property of the Society, and he is obliged to give such security as a general meeting may decide. The chairman must arrange that all suppliers must be paid for their milk before the eighth day of the succeeding month.

16. A balance sheet of the Society's receipts and expenditure must be prepared half-yearly on the 1st May and 1st November. The Society's financial year shall be from the 1st November to the 1st November, and both the half-yearly and the full yearly balance sheets must be singed by properly-qualified auditors selected by a general meeting. Such auditors are elected for two years and are eligible for re-election.

17. A Committee shall be elected at the first ordinary general meeting, consisting of nine men. This Committee elects one of its

members as chairman. Three of the members of the Committee retire annually in rotation, but are eligible for re-election.

18. The Committee have power to make the necessary arrangements for the management of the dairy, and fix the salary of the manager and his employés.

19. The meetings are called by the chairman, who, with the cashier of the Society, and the accountant, prepares the books for audit.

20. Certain public holidays will be observed by the creamery, and no milk will be received on such days. In case of fire or accident to machinery, or other unforeseen circumstances, the creamery will not be obliged to receive milk. Milk not received on any particular day under such circumstances must not be sent to the creamery on the following day.

21. Disputes between individual members and the Society shall be dealt with by the Committee, and failing settlement, shall be referred to a general meeting, whose decision shall be final and binding. This does not apply to acts of a criminal nature.

APPENDIX II.

Regulations for Milk Contractors.

A.—Feeding and Management.

1. The food of the cows must be of such a nature and quality that no bad taste or taint may thereby be imparted to the milk.

(*a*) Brewers' grain and all other similar refuse from distilleries are strictly forbidden, as also is every kind of fodder which is not fresh and in good condition.

(*b*) Turnips, kohlrabies, and rutabaga are absolutely forbidden; no kind of turnip leaves may be used.

(*c*) Carrots and sugar beets (mangolds) are permitted up to half a bushel per cow, but only when at least 7 lbs. corn, bran, and cake are given along with them. Cows supplying infant milk may get carrots, but never more than a quarter bushel per head.

(*d*) Oilcake. Rape seed cake is the only oilcake which may be used. 1½ lbs. is the furthest limit, along with at least 5 lbs. corn and bran. Infant-milk-cows must not receive any cake.

(*e*) The proportions in which the different kinds of food are to be given must be arranged with the Company before the contractor commences to supply milk.

2. Stall feeding in summer will not be permitted under any circumstances. The cows must be fed in the open-air upon clover and grass. Vetches are forbidden.

In a case of necessity dry food or cut corn may be given, but on the field.

3. In autumn the cows must be clipped on the udder, tail, and hind quarters, before being taken in.

4. Calving must be so regulated that the milk sent in during the months of September and October is not less than two-thirds of the largest quantity sent in any other month.

5. The milk of cows newly-calved must be withheld for 12 days after calving, and must not be less in quantity than three imperial quarts per day.

B.—Milking.

6. The greatest cleanliness must be observed during milking, and the milk must be strained through a wire sieve covered with a clean woollen cloth.

7. Immediately after milking, and during all seasons of the year, the milk must be cooled down with ice-water to 40 degrees Fahrenheit.

8. Every contractor must be provided with a Lawrence cooler, which he can obtain on hire from the Company.

9. Thirty pounds of ice, making due allowance for waste, must be kept in stock for every 100 lbs. milk produced, which can be calculated from the fortnightly trial milkings.

C.—Delivery of Milk.

10 (*a*) The milk must be delivered at the nearest station once or twice daily, according to the requirements of the Company, either as whole-milk or as "half-skimmed" milk and cream.

(*b*) The milk must not be sent from the farm earlier than is absolutely necessary for its arrival in proper time at the railway station.

(*c*) In summer the van for conveying the milk to the station must be provided with a cover to protect the milk from the heat of the sun.

11. The Company will supply the cans necessary for transport.

12. The Company cleans the cans before returning them, but they must be carefully rinsed out with cold water as soon as they reach the farm again, to get rid of any dust or dirt which may have adhered to them during the return journey.

The cans must be placed in a cool, airy spot until again required, protected from all impurities, with lids off, and bottom upwards, but in such a position that air can freely get into them.

13. The cans may not be used for any purpose but the conveyance of milk.

D.—Further Regulations.

14. The contractor is bound—upon word of honour—to answer any enquiries made by the Company concerning the milk supply.

15. The contractor must allow any of the veterinary surgeons of the Company to inspect his cattle as often as the Company requires, and must drive the surgeon to and from the station. The contractor is bound to follow out closely the instructions of the veterinary surgeon.

16. Any cow declared by the veterinary officer to be suffering from tuberculosis must be instantly and entirely separated from the rest of the herd as soon as possible.

17. The contractor must immediately inform the Company of any cause of illness which may arise between two visits of the veterinary officer. If necessary, he must withhold his milk until the veterinary officer arrives and enquires into the circumstances. In such a case the full price will be paid for the milk.

18. The contractor, to the best of his ability, must watch over the health of all who reside on his farm or work upon it, also the families of the latter. Should a case of infectious disease arise among any of them, he must immediately report the fact to the Company, and withhold his milk, which will nevertheless be paid for as usual, if these conditions are fully complied with.

19. Either of the contracting parties, after having given six months' notice, can terminate the contract on the following 1st of January.

20. Should the Company find the milk of inferior quality, and therefore unfit for sale, they shall be entitled to refuse to take it, without giving any compensation to the contractor.

21. If owing to an epidemic, or other unavoidable cause, the sale of milk in Copenhagen should be suspended, the contractor must withhold his milk for a shorter or longer period without compensation.

APPENDIX III.

Rules of Co-operative Bacon Factories.

1. The factory is the property of the shareholders in such wise that their share is in proportion to the amount each has guaranteed.

2. Every member, apart from the creditors of the factory, must be responsible for at least 50 kr.

3. The shareholders in a parish are bound "in union and in honour" as guarantors for the whole amount which has been guaranteed in such parish. They are bound to sign the approved form of guarantee on demand of the Committee. Moreover, shareholders also are bound specially, when demanded by the Committee, "in union and in honour" with all the other shareholders in the parish to sign as sureties "each for all and all for each" a bill payable, drawn up by the Committee on behalf of the Society, to such bank as the Committee may decide, and for such amounts as is warranted by the amount of guaranteed share capital in the parish. Should any shareholder refuse to sign the above-named document when demanded he is bound to pay in cash the amount of his guaranteed shares, and he loses his interest in the concern.

4. Members may at all times be admitted to the Society by the Committee, who also determine the conditions of such admission, but only when such application is endorsed by the Parish Committee of the applicant concerned.

5. The guaranteed liability of a member cannot be set aside. In the event of death the liability passes over to his family, who either must undertake the responsibilities of the deceased member in accordance with the whole liability of the parish guarantors, or find a substitute who will undertake the liability, and provided he is recommended by the Parish Committee.

6. The guaranteed liability can be transferred to any person when the Committee of the Society and Parish Committee agree thereto.

7. Each and every shareholder shall be provided with a card of membership with his name thereon.

8. Shareholders are bound to deliver to the factory all the pigs of 150 to 200 lbs. live weight, which they produce up to the end of the year.....For every pig which shareholders sell to others than the factory, with the exception of boars and sows, and young pigs up to four months old, male and female, which are sold to other

shareholders, day labourers, and artisans, and such as they require for domestic purposes, they must furnish either the weigh-ticket from the authorised weigh-master to the Parish Committee or allow the weighing to take place on the premises of a member of the Parish Committee. This rule is also binding for pigs which are sold in slaughtered condition, the allowance in such case from the living to the dead weight, being 25 per cent.

Should any shareholder violate the afore-mentioned order, that he either sells one or more pigs of 150 to 200 lbs. weight, to others than the factory, or fails to furnish the necessary weigh-ticket within four days after the sale, he is bound to pay the factory a fine of 10 kr. for every pig he has sold in such way, and for which he has not produced the weigh-ticket or authorization.

9. Besides pigs of the afore-mentioned weights, the factory shall also receive other pigs of heavier weights, including boars and sows, and the factory has always the right to fix the time and place for taking any such pigs.

10. Shareholders who live within one and a half (Danish) miles from the factory shall deliver their pigs to it. On the other hand shareholders who live beyond one and a half miles deliver pigs to the nearest railway station or stopping place. If they deliver to the factory they are allowed the carriage and the freight

11. Prices of pigs are calculated according to dead weight, and are paid for as soon as possible and at latest within eight days after delivery.

The yearly reckoning takes place every 1st of January, the dividend after deduction of working expenses and amount carried to reserve fund, discount, and interest, are apportioned to the members in proportion to the amount of their accounts in the books of the Society.

General Meeting.

12. The General Meeting is the supreme authority in all affairs of the Society.

13. Every shareholder is entitled to attend the General Meeting and record his vote. Every shareholder has one vote. Every shareholder must, in order to record his vote at the General Meeting, be personally present, or send a deputy, who must be a shareholder, and who certifies his voting power as a deputy by the production of the member's card of membership for whom he votes. No one can represent more than ten shareholders, though with respect to the Island of.....each member may hold 25 proxies.

14. The General Meeting decides by a simple majority of votes all affairs of the Society. To effect alterations in these rules, as well as in deciding the dissolution or sale of the factory, it is necessary that at least one-half of the shareholders shall be present, and a

three-fifths majority of those in attendance must vote in favour of such proposals. Should there at any properly-convened General Meeting not be present the necessary proportion of the members, a new General Meeting must be called, giving 14 days' notice, and then without regard to the members present the question may be decided by a three-fifths majority. Voting takes place by a show of hands, or when the chairman, or 25 shareholders demand it, by ballot. Resolutions and minutes of General Meetings shall be signed by all members of the Committee present, after which they shall have binding authority.

15. The Ordinary General Meeting shall be held in the January quarter.

The Chairman can call together an Extraordinary General Meeting, and he is bound to do so when over half of the Committee, or at least 50 shareholders request him in writing, and state the object for which the meeting is to be called. General Meetings shall be held in..... Extraordinary Meetings which have been demanded by the Committee or shareholders shall be held at latest four weeks after the notice has been received by the chairman. Notices of General Meetings shall be given fourteen days in advance. At the summoning of every General Meeting, the object for which it is called shall be stated.

Ten shareholders can demand the consideration of any question at a General Meeting, provided they have given the chairman notice in writing and before the notice convening the meeting has been sent out.

16. At the Ordinary General Meeting the Committee is elected, consisting of.....members. The yearly statement of accounts is prepared by the Committee and shall be sent eight days in advance to all members, also stating the condition of the Society in the past year.

The Committee.

17. The Committee shall be elected from amongst the shareholders, for two years, in such manner that three members retire after the first year, four after the next year, and so on. The first three shall retire by ballot.

18. The Committee elect yearly from amongst themselves the chairman and vice-chairman. The Committee shall meet as often as the Chairman or three members deem it necessary. The chairman is remunerated as may be decided upon at a General Meeting. Members of the Committee pay their own travelling expenses.

19. The decision of the Committee is in all cases final, provided four members are present. Any matter under consideration is decided by a majority of votes. Should the votes be equal the chairman has a casting vote.

Rule 20. The Committee shall keep a minute book, in which is entered everything relating to their meetings, and in which also is entered anything of special interest affecting the business of the Society.

21. The Committee represents the Society in all its business transactions, and binds it in its resolutions, business undertakings, or contracts, all of which must be in conformity with the statutory obligations imposed by law. It is, moreover, bound to carry out the decisions of General Meetings.

22. The committe has the right, on behalf of the Society, to negotiate loans to whatever amount may be allowable under the Society's guarantees. A loan for more than the amount permitted by the guarantees cannot be arranged without the sanction of the General Meeting.

23. The Committee undertakes and discharges the above-mentioned functions of the Society. Other functions shall be undertaken and discharged by the manager. All arrangements necessary to secure loans must be completed by the Committee. All persons in receipt or charge of money shall give ample security.

24. A General Meeting elects two competent auditors, who shall audit the yearly accounts. One of the auditors, who shall be a good accountant, and a resident....., shall furnish weekly a return and statement of cash. The auditor's salary shall be fixed by the Committee. They are elected for one year, but are eligible for re-election.

25. In every parish in which there are shareholders or suppliers, a Committee is elected by a simple majority of votes, of from three to five members whose duty it is to look after the interests of the Society in that parish, also to advise the Central Committee concerning violations of its rules, more especially Rule VIII.

Ordinary Rules.

26. Besides the already-admitted members, the Committee has power to admit new members from time to time as suppliers of pigs.

27. Non-members who supply pigs receive such amount as the Society, through the factory, can realise for the pigs supplied to it, after deduction of working expenses and instalments in discharge of original fixed and business capital of the Society, and also preliminary expenses, and an allowance in respect of the reserve fund, so that they receive proportionately a part of the dividend the same as the shareholders, and on the condition that they are, moreover, bound under the same rules regarding the delivery of pigs as the shareholders.

28. The Committee is empowered to buy pigs for the factory.

29. The Society shall form a reserve fund to which an amount or proportion of the profits shall be applied, as shall be decided by a General Meeting, though the yearly application in no case must exceed 5 per cent. nor less than 2 per cent. of the profits. The reserve fund must be invested in substantial, easily realizable security.

30. The Society's loan for building and plant shall be reduced by one twenty-fifth yearly.

31. The Society is bound only by the signatures of the majority of the Committee, though the cashier's receipt or signature for the daily working expenses when it is endorsed by the auditor is binding on the Society.

32. Disputes between the Society and shareholders or suppliers shall be brought before an Arbitration Board. The Board shall be formed of three men, two of whom shall be elected for one year at a time, one from the Ordinary General Meeting, and one from the Committee. The third man is elected in each case by the shareholders or suppliers whom the dispute concerns. The arbitrators must not be related to the shareholders or suppliers, from the degree of cousin or upwards, nor be related by marriage in like degree. Should such a thing happen a new board shall be elected by the Committee, but this only holds good for the case in question. If a shareholder or supplier will not elect an arbitrator, or should the man elected refuse to act, the others arbitrate alone in that case.

APPENDIX IV.

Form of Guarantee in operation at Kalundborg.

"We, the undersigned, hereby declare that we are willing to deliver to the Co-operative Bacon Factory, which it is proposed to establish in Kalundborg, all the pigs of weights between 150 and 200 pounds which we may produce for sale. Such pigs will be delivered on condition (which will be more definitely decided in due course by the shareholders of the Society) that we shall receive such amount in payment of such delivered swine as may be realized for them by the Factory, less preliminary expenses incurred in the organization of the Society and the annual instalment on loan for building and plant payable during a period of about twenty-five years, together with current working expenses.

This, our bond, shall be binding upon us until the close of the year.....

Those of us who severally guarantee payment of the building and equipment capital, bind ourselves, each for ourselves, provided it is demanded by the Committee jointly and "in honour" with the other guarantors in the.....Parish, to subscribe ourselves as securities "each for all and all for each" to a Bill Payable made out by the Committee on behalf of the Society to such Bank as the Committee may decide, and for such sum as is guaranteed jointly in the aforementioned Parish, which loan so paid the Committee shall be obliged to apply as fixed or working capital for the purposes of the Society.

The guarantee shall be graduated thus:—

Those who have under one Tonde Hartkorn at least fifty krones; for proprietors from one to ten Tonde Hartkorn, one hundred krones, and for larger proprietors, one hundred krones for every ten Tonde Hartkorn but not more than five hundred krones.

Note.—It is a fundamental principle with reference to this guarantee that all guarantors are partners in the ownership of the whole property of the Factory in proportion to the amount they have severally guaranteed, and all shareholders have the same right to vote at meetings for the consideration of the Society's affairs. Only suppliers of swine can be guarantors.

APPENDIX V.

Bye-Laws of the Farmers of Denmark's Co-operative Egg Export Company.

Head Office at Copenhagen.

The Company.

Section 1.—The name of the Company is The Farmers of Denmark's Co-operative Egg Export Association.

Section 2.—The Co-operative Association, which started its working on April 20th 1895, has since April 20th 1900 had its domicile and venue at Copenhagen. The head office may be moved to any other place in Denmark, if the Board and the representative committee should make a resolution to this effect.

Section 3.—The principal object of the Co-operative Association shall be to work up to utmost profit the trade in Danish eggs in foreign countries, guaranteeing to buyers that the eggs stamped with the Association's registered trade mark for new-laid eggs, are always newlaid and clean. Besides this, the object of the Association is in all respects to guard the interests of egg producers, to provide for the preserving of eggs and the sale or fattening of the Co-operators' fowls, as also to advance the establishment of well-managed and profitable poultry breeds and poultry farms.

The Circles.

Section 4.—The Co-operative Association consists of circles of not less than 10 members. Exceptions from this may be made by mutual resolution of the Board and the Representative Committee. Any circle which has joined the Co-operative Association is liable to abide by the bye-laws of the Association which are for the time being in force. The committee of a circle must provide that the bye-laws of the circle are in conformity with those of the Association.

Section 5.—Admission to the Co-operative Association may be granted after an application in writing has been sent by the committee of the circle to the president of the Association. The connection must last at least one year, At the same time as the application is sent, a copy of the bye-laws of the circle signed by its committee and a list of the members on which the number, name and profession of each member is stated, must be delivered; besides

the circle must pay an entrance fee of 50 öre per member to the Co-operative Association. For each new member 50 öre are to be paid in the same way, unless the new member takes the number of a member who withdraws. If new members are admitted to a circle, the circle foreman must at once inform the president of the Co-operative Association in writing. The Board has the right to refuse admission of separate circle members and of circles. Against such resolutions appeal may be made to the Representative Committee and the general meeting. Withdrawal, which must be communicated in the same way as the admission, can only take place on the 1st January after notice having been given at least three months in advance.

Section 6.—Each circle which has joined the Co-operative Association is liable to deliver all eggs collected from the members. Eggs which are over 7 days old must not be delivered to the collectors. For infringements hereof as well as for delivery of spoiled eggs a fine of 5 krones is inflicted on the member in question, which in cases of repetition may be increased to 10 krones. When a new calendar year has commenced the fine is always 5 krones as for a first offence. One-half of the fine accrues to the Co-operative Association, and the other half to the circle of the member in question. The fine is dictated by the Board of the Co-operative Association, whose decision is final. In case of legal steps being taken for the collection of a fine, the infringer is liable to pay all additional expenses without regard to decree of August 6th 1824.

Section 7.—The circles must not keep eggs which have been collected longer than 4 days before sending them to the Association. The Board of the Association may, however, grant temporary leniencies with regard hereto, and also with regard to the limit of delivery as per section 6.

Eggs must be delivered absolutely clean, and for the purpose of controlling, each egg must be distinctly stamped with the number of the circle and of the member borne on the list of members. The Company has the right to refuse receipt of eggs which do not fulfil these conditions or to account for them at a lower price. To secure a uniform stamping of eggs each circle must provide the members with stamping-ink and rubber stamps bought from the purveyor indicated by the Association.

Section 8.—If a circle has not delivered all the eggs collected in the course of the year to the Co-operative Association, or if it has kept the eggs for a longer time than stipulated in section 7, it loses its share of the yearly surplus amount and the reserve fund for the year in question, and the Board of the Company shall furthermore be entitled to consider the circle as having withdrawn at and from the end of the fiscal year.

The Board has the right to exclude circles and separate members. Such resolutions can be appealed against to the representative Committee and the general meeting, but not to law courts.

Rubber stamps from circles which have withdrawn or have been excluded must be sent to the head office at once without remuneration.

Circles or members who have withdrawn or have been excluded, have no claim whatever on the property, yearly excess amount or reserve fund of the Co-operative Company.

Section 9.—The freight on eggs by railway or steamer is paid by the head office; the circle is, however, charged with the difference, if the freight exceeds one öre per pound of eggs net, each time a shipment is received.

The Board.

Section 10.—The Board consists of the Director and four other members. They are elected at a general meeting, the Director for a period of five years, the other members for two years, so that two of them retire alternately every year. Members of the Board who retire may be re-elected. The Board elects from its members a Vice-director. The Business Committee consists of the Director, the Manager and a member of the Board elected by the Board. This committee fixes the quotations and signs for the Company, binding it by two signatures. If a member of the Board dies or resigns, or from other reasons ceases to act, the Representative Committee effects a supplementary election. If a Director in this way ceases to act, the Vice-director may act and be salaried as Director till the next ordinary general meeting, unless the Board consider it necessary to call an extraordinary general meeting for the purpose of effecting a supplementary election of the Director.

The members of the Board are unpaid, with the exception of the Director; when on duty, however, they receive six krones daily for subsistence, free travelling expenses (1st cabin on steamers and 2nd class on railways) and one krone per running Danish mile for carriage hire.

Section 11.—The Board decides as to the carrying on of the business, it appoints the manager and the other permanent employés, while the Representative Committee fixes their salaries. The Director fixes meetings for the Board when he considers it necessary or when requested by at least three members of the Board. As far as possible seven days' notice is given for such meetings. The Director carries on the proceedings. There must be an absolute majority when resolutions are made, *i.e.*, three votes are necessary to make a resolution valid. The Director of the Representative Committee has the right to attend the Board meetings, but has no right to vote.

Section 12.—The Director settles the affairs of the Co-operative Association, being responsible for the Board. He represents the Association in legal proceedings.

The Director's salary is 5,500 krones annually, with a percentage of ½ per cent. on the excess over three million krones of turnover in a fiscal year.

When travelling on behalf of the Company, the Director charges the same expenses as the Board members.

The Representative Committee.

Section 13.—The Representative Committee consists of members each of whom is elected to represent one county. They are elected for four years and half of them resign every second year. They are elected at an ordinary general meeting where the trustees residing in a county elect a representative for that county. Representatives who have resigned may be re-elected.

The Representative Committee elect amongst themselves a President and Vice-president to act for two years. The President calls meetings of the Representative Committee when he or five of its members should think it necessary. As far as possible seven days' notice should always be given in such cases.

At meetings of the Representative Committee, a Secretary shall be elected to take down entries of the proceedings, subjects of discussion and votings at the meeting. The records shall be signed by all Representatives after reading of same. The President directs the proceedings. The Board attends the Representative Committee's meetings, but has no right to vote.

Section 14.—The Board is liable to place all important matters, which do not concern the ordinary business, before the Representative Committee for decision, unless such matters ought to be settled without delay. In this case the Board settles the matter and puts it afterwards before the Representative Committee. An absolute majority, *i.e.*, not less than 10 votes, is necessary for the passing of resolutions by the Representative Committee.

Section 15.—The Representatives are unpaid; they do, however, receive the same subsistence and travelling remunerations as the Board.

Should a Representative die or resign, or from other reasons cease to act, the trustees residing in the parish in question shall effect a supplementary election on the first coming general meeting.

The Audit Department.

Section 16.—The auditing shall be effected by two expert accountants, who shall be proposed by the Representative Committee and elected at the general meeting for two consecutive years; they resign alternately, the first time by drawing of lots. Further two substitute accountants shall be elected in the same way. The Auditors must at least once a month effect a critical revision. They shall at any time have unhindered admittance to control the working of the Association, especially by inspecting the stocks, the cash-box, the ledgers, accounts, vouchers, etc.

If the Auditors find reason to make queries, they must make a report to the Director of the Company, who shall give the necessary instruction to the Manager to be attended to by him, until the matter can be decided at a Board meeting. If both Auditors should find it necessary they can request the Board or the Representative Committee to be called together. The Auditors are liable to attend Board meetings but have no right to vote. The Auditors' salaries shall be fixed by the Representative Committee on the proposal of the Board.

The General Meeting.

Section 17.—The general meeting consists of the Board, the Representative Committee and one trustee from each circle of at least 10 members. Members of the Board and of the Representative Committee have, however, no right to vote, unless they are trustees at the same time. The trustee must produce a power of attorney from the circle committee. A trustee from Bornholm cannot represent more than five circles.

Section 18.—An ordinary general meeting shall be called every year in the last half of the month of March. Extraordinary general meetings shall be arranged when the Board considers it necessary, or on the request of one-tenth of the circles or one-half of the Representatives. The extraordinary general meeting shall be held within a month after request having been made. The general meetings shall be announced by letters sent to the foremen of the circles, at least a fortnight in advance. The announcement shall, as far as possible, be accompanied by an order of the day. The time and place of the general meeting shall be published in the Association's journal.

Proposals which are desired to be discussed at the ordinary general meeting must be announced to the Director before February 20th, and proposals which are discussed at an extraordinary general meeting must be sent to the Director at the same time as the request of holding the extraordinary general meeting.

Directly before an ordinary general meeting, a meeting of the Representative Committee shall be held to discuss all subjects mentioned in the order of the day for the general meeting. The Representative Committee has the right, with a majority of three-fourths of the votes, to disallow the discussion of a proposal, so that it is struck out from the order of the day, with the exception, however, of such objects of discussion and complaints as mentioned in section 19 of the bye-laws, which in accordance with sections 5 and 8 shall be laid before the members of the general meetings.

Section 19.—At the general meeting, a Chairman, a Secretary and two Vote-counters shall be elected. The Secretary shall keep a record of all discussions and votings at the general meeting. The record shall be signed by the Chairman, the Secretary and the Business Committee, and it shall be considered full evidence of what has taken place at the general meeting. At all votings ordinary majority shall decide

the matter except in cases where in accordance with the bye-laws, a qualified majority is necessary. If the votes are equal, the vote of the Chairman is decisive. Voting in writing shall take place if the Chairman decides it or if not less than 20 members request it. At the voting the admission cards for the general meeting must be produced. According to a proposal from the Board or the Chairman, the voters at the general meeting may with ordinary majority exclude a trustee from participating in the general meeting. A resolution of this kind cannot be made the object of legal proceedings.

Section 20.—At the ordinary general meeting the following matters shall be dealt with :—

(*a*) Report on the working of the Co-operative Company during the fiscal year expired.

(*b*) The audited accounts shall be produced to be passed.

(*c*) Election of a director, if necessary.

(*d*) Election of Board members.

(*e*) Election of Representatives, if necessary.

(*f*) Election of an Auditor and a substitute.

(*g*) Selection of the place where next general meeting is to be held.

The Reserve Fund.

Section 21.—Half of the net surplus profits of the preceding year shall be paid in October to the circles in proportion to the value of eggs delivered, while the rest shall be placed in the reserve fund. This amount shall be used as trading capital, but it shall be credited to the circles on a separate account in proportion to the value of eggs delivered.

The amount placed on this account can only be paid out if the Company is dissolved, unless the Board considers that only part of the amount is necessary for carrying on the business.

The share of the reserve fund belonging to a circle or a separate member cannot as a rule be claimed by the creditors of the party in question ; the claims which the Co-operative Association may have on the party shall, however, be excepted.

Should a payment be made to the circles of their share in the reserve fund, the circles which have participated during the highest number of years shall be paid first. The shares of the circles in the reserve fund carry interest at the rate of four per cent. per annum. which is remitted at the same time as the surplus profit.

The Course of Business.

Section 22.—The money of the Company shall be invested in a bank selected by the Representative Committee. Payments shall be

made by the bank as per instructions from two members of the Business Committee.

The payments to the circles for eggs received shall take place with the least possible delay.

Section 23.—The Manager superintends, under the control of the Director, the daily course of business in accordance with instructions received from the Board. He is responsible that the stock of eggs and the inventory are insured against fire, and that eggs shipped are insured against damages at sea.

Section 24.—The Director, the Manager, the Treasurer and the Branch Managers must find necessary security for money entrusted to them. Contracts and declarations must be approved by the Representative Committee before they are effected.

Section 25.—The Co-operative Association can only be dissolved if this has been resolved by a majority of two-thirds of the voters present on two consecutive general meetings.

Alterations in the bye-laws can only be made if not less than two-thirds of the voters present at the general meeting approve thereof.

Section 26.—In case of dissolution of the Co-operative Association, its property shall be realised in the following way: First all the liabilities of the Co-operative Association to outside creditors shall be settled. If part of the reserve fund is spent for this purpose, the rest shall be divided amongst the circles in proportion to the amount for which they are entered on the reserve fund account.

Should there be an excess amount, this shall be divided amongst the circles in proportion to the value of eggs delivered in the course of the last fiscal year before the dissolution.

Section 27.—These bye-laws shall come into force from 1st April 1902.

Passed at the general meeting in Copenhagen, March 22nd, 1902.

Signed by five members of the Board for the Representive Committee.

BYE-LAWS.

OF

Circle No.

of theFar mers of Denmark's Co-operative Egg Export Association.

Section 1.—The circle is subordinate to The Farmers of Denmark's Co-operative Egg Export Association and must abide by its laws, which are for the time being in force.

Section 2.—Members may join by applying to the Circle Board. On joining each member pays 50 öre to the Farmers of Denmark's Co-operative Egg Export Association and 1 öre per hen to the Circle.

Section 3.—Each member must without reservation abide by the bye-laws of the circle as they are now or may be in course of time legally amended.

Section 4.—The members are liable to deliver all their eggs—with the exception of what they consume themselves, hatching eggs and eggs found by chance—in the way and at the times stipulated by the Circle Board. The obligation of delivery is for one calendar year at a time.

Section 5.—No eggs which are over 7 days old must be delivered. In cases of infringement with regard hereto and if spoiled eggs are delivered, a fine of 5 krones is inflicted on the member in question. This fine is dictated by the Board of the Co-operative Company (the Chief management) and may in cases of repetition be increased to 10 krones. One-half of the fine accrues to the Farmers of Denmark's Co-operative Egg Export Association, the other half to the Circle in question. The judgment given by the chief management is final in spite of decisions made by the Circle Board or the egg collector.

In cases of legal steps taken for the collection of the fine, the party in question is liable to pay all expenses without regard to the decree of August 6th 1824.

Section 6.—Eggs must be gathered carefully every day and during the hot summer season at least twice a day. Eggs found by chance must not be delivered. Only artificial eggs must be used as nest eggs, and the nests must be barred for the hens during night.

Section 7.—Only clean eggs must be delivered, and producers as well as egg collectors must keep them protected against sunshine, rain and frost.

Section 8.—The member must deliver eggs to the Circle from their own hens only. For infringement hereof a fine is inflicted, the first time 25 öre, later on 50 öre, per pound of eggs illegally delivered.

Section 9.—The member-list of the Circle must contain the number, name and profession of each member, and the member's number in the list must be the same as the one with which his eggs are stamped. Alterations in the list must be reported to the head office of the Co-operative Association by the foreman of the Circle.

A rubber stamp with pad, etc., is delivered to each member against payment of about 25 öre. The number of the circle and the number of the member are engraved on the stamp, with which each egg must be stamped at the thick end carefully and distinctly before delivery.

Section 10.—The egg collectors must only accept eggs which are clean and distinctly and carefully stamped.

Section 11.—The Circle Board has a right temporarily to refuse to receive a member's eggs, and a member may be excluded by a majority of votes at a general meeting or by the Board of the Co-operative Association.

Section 12.—The necessary capital for payment in cash of the eggs delivered by the members shall be raised by loan. The members of the Circle shall be jointly and severally responsible for the loan, which is paid to the egg collector against proper security.

Section 13.—Eggs shall be paid for on receipt, prices to be fixed by the Circle Board. Should higher prices be obtained for eggs when exported, the excess amount shall not be distributed to the members unless a suitable amount, according to the decision of the Circle Board, has been set aside for the reserve fund.

Section 14.—Notice of withdrawal shall be given to the Circle Board. The connection can, however, only cease at the end of a fiscal year. Members who have withdrawn or have been excluded, have no claim on the excess amount, the reserve fund or other property belonging to the Circle, and they must deliver their stamp to the Circle-foreman without receiving any remuneration.

Section 15.—The Circle Board shall consist of a number of members, namely,.....who shall be elected at a general meeting.

Section 16.—The Circle Board shall provide that the working of the Circle is furthered in the most effective manner especially so that the eggs are delivered to the Co-operative Association in the proper condition as required. The Circle Board shall appoint and discharge the egg collector and others who carry out the business of the Circle, fix their wages and superintend their work.

Section 17.—The general meeting elects yearly two auditors, who shall audit the yearly accounts before the expiration of January of the following year.

Section 18.—The ordinary general meeting shall be held in the beginning of February, so that possible proposals for the Association's Board may be received by the Director before February 20.

Section 19.—The Circle shall send a trustee to the general meeting of the Co-operative Association.

Section 20.—Should the Circle be dissolved, the amount in hand, after meeting all liabilities, shall be divided amongst the members in proportion to the value of eggs delivered during the last fiscal year.

Approved at a general meeting at _____

on the _____

Signature of the Circle Board.

APPENDIX VI.

Revised Bye-Laws

of the

Kreditforeningen of Grundejere i de danske Östifter.

(Credit Society of Estate Owners in the Danish Islands-Diocese-Districts).

Chapter I.

Ordinary Regulations.

Prg. 1. The Society, which has been working since December 11th 1851, according to bye-laws dated the 1st and confirmed the 6th December 1851, has the aim to supply estate-owners in the island-dioceses with loans on their properties of so high amounts, as may be granted against statutory security. These loans carry interests and are repaid by invariable semi-annual instalments, so that the instalments increase in the same proportion as the interest decreases (Section 24).

Any estate-owner in the Danish Islands-Diocese-Districts—including Samsö—who has received a loan against mortgage of his property from the society, is a member of the society.

Prg. 2. The society only receives as mortgage the following kinds of grounds:

(*a*) Grounds which are used as fields and meadows or pastures, together with the buildings and livestock necessary for their cultivation.

(*b*) Grounds of the same description without buildings and livestock, if according to their position they may be expected to find tenants at any time.

(*c*) Forests and peat moors.

(*d*) Buildings with appertaining ground in market towns or with such a position that they may be expected to find tenants at any time.

The incomes connected with landed property accruing from heritable and other lease property and from tithes, decided by the co-operation of a tithe commission to be a fixed annual remuneration as well as of all other fixed reimbursements, must with their capital value statutorily calculated altogether not exceed one-half of the

full assessed value of the whole property, herein included the abovementioned incomes and reimbursements. The value of the property will be assessed by the appraisers engaged by the society, and to be accepted for mortgaging it must be able to render a certain annual profit (Section 12).

Prg. 3. The loan granted by the society must, according to the Law of June 20th 1850, not exceed $\frac{3}{5}$ of the amount at which the property, on which a mortgage is desired is valued in accordance with the rules laid down in these bye-laws. The amount of the loan which may be statutorily granted in this way shall be reduced by the amount of the capital, which is to be standing in the property as an investment with right of priority to the society. The loan cannot be less than 600 krones (£33), and is not granted on secondary mortgage unless the capitals, which are to have a right of priority in the property to the loan applied for with the society, are either capitals under public management or age, even at change of ownership, unredeemable by the creditor for at least 10 years from the date the society grant a loan. Heritable leasehold dues shall be capitalized by multiplying the annual amount by 25 and shall be considered a mortgage debt in this way. Also the bank-charge shall be considered a mortgage debt if it has been replaced by a ceded bond.

Allowance to seniors shall be calculated on basis of the capital at which an annuity policy corresponding to the value of the annual allowance amounts may be purchased in the State Life Insurance Society.

Prg. 4. Joining of members to the society as well as the latter's emission of treasury bonds, takes place in independent series, which in consecution are indicated 1st, 2nd, 3rd and so forth. The closing of a series shall always be effected at the end of a fiscal year and subject to the condition that the series has obtained a total capital of at least 10 million kornes (£555,000).

When a series is closed and a new commences, this shall be published in due time in Berlingske Tidende as well as in Lolland-Falster and Funen Official papers and in one or more of the most spread local papers in each of the districts of representatives.

The first series of the society have been closed. 5th and 6th series consist in a first and a second section. In the 1st section the annual interest is—until further notice, *vide* preliminary regulations Section 3—4 per cent. in the 2nd Section $3\frac{1}{2}$ per cent. In the 6th series a new Section was established on the 11th of June 1896, in which the annual interest is 3 per cent.

The mortgage deeds issued to the Society up to the 31st of March 1862 as well as the treasury bonds emitted by same up till same date, are considered as belonging to the first series, but in all mortgage deeds issued on the 2nd to 6th series of the society and all treasury-bonds emitted by the society on behalf of these series, it is stated and must be expressly stated to which series and section they belong.

In the same way the interest coupons accompanying the treasury-bonds must bear a distinct indication to the same effect.

Any instalment made in treasury-bonds on a loan received from the Society can only be accepted if the treasury-bonds belong to the same series and section as the loan. The treasury-bonds of each of the two sections of the 5th and 6th series are issued and shall be issued with an exterior and contents so different from each other that the difference between two sections is distinctly indicated thereby. In the new section, which is established in the 6th series from June 11th 1896 the same precaution shall be taken.

Prg. 5. The members in each series are mutually liable—jointly and severally—with the properties mortgaged by them in accordance with the Law of June 20th 1850 Section 4 d, for the treasury-bonds emitted by the society of that series to which they belong and generally for all liabilities specially undertaken by the series. When a series has been closed a joint responsibility commences between the same and the following series of a similar extent, which continues till the latter has obtained, at the end of a fiscal year, a total capital of at least 4 million krones (£220,000).

Members of different sections of a series are jointly responsible.

Further, it shall be observed that members, who leave the Society cannot obtain discharge for the cession of the joint responsibility resting with them before the accounts for the year in question have been endorsed by the Ministry of the Interior to the effect that no observations are to be made by the Public, unless such security for the fulfilment of the joint liability is produced as the Ministry of the Interior has found sufficient.

Transfer of a loan from a closed series to the open one cannot be effected before the Ministry of the Interior has permitted that the joint liabilities as regards the closed series shall cease at the same time as the transfer.

Prg. 6. In the event of an estate-owner wishing to join the Society, he communicates with one of the appraisers of the Society for the district in which his property is situated, applying in writing to have the value of it assessed. The appraiser thereupon transacts the necessary in accordance with Section 57 of these Bye-laws. The owner is liable during the survey to render the appraisers all the information about the property which they might ask for in accordance with their instructions and otherwise for the settlement of the matter, and he shall endorse the survey report by a declaration in writing stating that he has given this information to the best of his belief. The report on the survey with a statement of the fee and a receipt for payment of same shall be attached to the owners' application to the directors for the membership. This application shall be delivered to the representative of the district, who shall forward it to the directors together with his declaration in the matter. The application shall be worded in accordance with printed forms, which may be

obtained at any time in the head office of the Society or with its appraisers, in which it must also be stated what other information and documents concerning the property which are to accompany the application, such as:

(1) Title and other documents re-access.

(2) Certificates and if necessary abstracts from the mortgage records.

(3) Statement of all taxes, dues and other encumbrances of all kinds whatsoever resting on the property, as far as possible accompanied by receipts for the year expired and otherwise certificates from the proper authorities.

(4) Certified statement of the superficial measurement from the authorities or certificate as to same from a land surveyor and chart over the grounds appertaining to the property (however no chart is necessary for appertaining leasehold ground, if sufficient information as to the condition and situation of the land is in other ways supplied).

(5) Rent and lease contracts and rent rolls.

(6) Certified statements as to the insurance amounts of the buildings, the live-stock and the inventory.

The documents mentioned in clauses 1-5 may be replaced by duly certified copies.

When an application has been dealt with statutorily the party concerned will as soon as possible be informed whether the loan desired will be granted. The loan granted will be paid according to further agreement as to date and place against the issue of a mortgage deed, made out in accordance with a specimen supplied by the directors for the purpose. The receiver of the loan must pay the expenses of having it registered, and in the way he must defray all the expenses for official fees, etc., which may have to be paid on account of the loan.

For loans, which are repaid after the expiration of the months of term in question, full payment of interest must be made for the whole of the current half-year, whereas the loans on the other hand may be repaid with treasury-bonds, which carry interest also for this half-year.

If a member wishes to change a loan, which has a priority right to the debt to the Society with a loan from the Society, the directors may renounce on a further survey.

Prg. 7. Of the treasury-bonds issued for each series by the Society there must never be a higher sum in circulation than what the Society holds of the mortgage-deeds issued by its members for the same series and the instalments paid in cash thereon, which have not yet been used for redemption of treasury-bonds. In case the security which is thereby obtained for the holders of treasury-bonds should be

reduced thereby that the members of the Society are in arrears with instalments or cause losses to the Society, these shall be covered by the reserve fund of the series concerned.

Prg. 8. The Directors of the Society shall have no right whatever to encumber or transfer the mortgage bonds issued by the members in favour of the Society.

Chapter II.

Concerning the Valuation of the Mortgaged Property and the Control of its Maintenance.

Prg. 9. The value of property offered as sucurity shall be assessed by two of the appraisers, who have been appointed for the district in which the property is lying. In the event of the value of forest having to be assessed and none of them consider themselves sufficiently able to judge the special implements and circumstances in connection with forestry, they shall be entitled themselves to call for assistance an expert, who however must not be the same person, who might have effected the valuation of the materials. The third person, who does not need to be a member of the society, shall receive the same fee as the appraisers of the society and he shall likewise sign the survey report.

Valuations of the species of property mentioned in Section 2 sub a, b, etc., must only be held during the time from April 1st to November 1st; however the directors shall have the right to permit exceptions from this rule, if the appraisers declare expressly that the season has not been a hindrance to a careful effectuation of the survey.

Prg. 10. In holding the survey the appraisers shall carefully abide by the instructions, which will be accompanied by a form for the survey. However, they shall not omit to take into consideration such special occurrences and circumstances which have not been anticipated in the instructions and which might have an influence on the value of property. In the same way they shall request the proprietor to give them all the necessary information for a careful valuation, and after having held the survey they shall at once write a report on same.

Prg. 11. Each survey report must contain a careful statement of the assessment for taxation, superficial measurement and the nature of the ground for the plots of land appertaining to the property, as well as the manner in which they are cultivated and their condition as regards cultivation. Also their situation as regards drainage, and the distance in which they are lying from the buildings should be taken into consideration. The appraisers shall make out a specification, as far as possible correct of the live-stock and all more important articles of inventory and implements connected with agriculture and

in the same way the surveyors shall give an opinion as to and whether the live-stock and inventories are in a proper proportion to the size and method of working of the property. At the valuation of forests the cultivation shall be described according to species of tree, age and condition, so that the existing differences with regard hereto are as far as possible indicated by superficial measurement. If the value of a forest, whether it appertains to another property or not, is desired estimated at a value of more than 10,000 krones (£550), the owner must engage a well-known expert on forestry, who does not need to be a member of society to let all wood in the forests of more than 6 inches in diameter be valued and counted up in cubic feet and forward to the appraiser a report on the result of this valuation of material, together with the requisition of the valuation.

For the working buildings belonging to a landed property it will be sufficient to state their extent and installation in proportion to the area of cultivated land, but for dwellings and buildings in towns a perfect and detailed description is necessary, also as regards the fixed inventories belonging to same. The style and the principal deficiencies of a building must always be stated.

Prg. 12. The value of the assessed property must always be fixed so that the amount by which the yearly receipts exceed the yearly expenditures—both calculated according to the hereinafter mentioned rules—shall be raised to a capital by multiplying by a factor which for the species of property mentioned in Section, 2, sub a, b and c for the permanent annual incomes from leaseholds, tithes, etc., mentioned in same section shall be 25, but only 20 for the other species of property therein mentioned. The value assessed in this way shall, however, be reduced in case the appraisers should be of the opinion that new buildings or extensive repairs, which would cause extraordinary expenses would be requisite for working a property in the proper manner according to the present method of working it, or that the buildings have deficiencies, the repairs of which could not be included in the yearly maintenance expenses, or that in buildings and grounds installations are missing on which the rent calculated for same are conditioned. The expenses necessary for such purpose must be calculated by the appraisers and must be deducted in full from the assessed value found on basis of the net income. The appraisers should further state distinctly at what sum they consider that the property should be assessed as its market value at the present quotations. In case this value should differ considerably from the capitalized amount of the net income, the appraisers must state the reasons, which according to their judgment have caused this difference. Should the estimated market value be less than the captalized amount found from the net income, the amount of the loan shall be fixed in proportion to the market value assessed.

Chapter III.

Liabilities and Rights of the Members.

Prg. 22. By the bond a member has issued to the Society, he pledges himself to allow, if the capital owing or any amount due to the Society has fallen due and is not paid within the proper time to the Board of Directors, without any preceding accommodation, intercession, judicial proceeding or sentence (through the bailiff), execution in the mortgaged property or part thereof and disposing of same by public auction or if necessary, assigning it as being the property of the Society, so that execution required or the auction thereafter notified cannot be stopped or reversed by any complaint addressed to a higher court of justice, when the auction has taken place in accordance with the provisions of the law in force, the member concerned being, however, at liberty to arrange for a remedy-prosecution with the object of obtaining full compensation from the Society, if he is of opinion that his case has not been dealt with justly.

Prg. 23. The members shall be liable to give the Board of Directors or the parties authorized, opportunity to examine the condition of the mortgaged property and to supply those particulars, which might be required with respect thereto. In the same way every member shall, if required, produce to the Board of Directors, within the month of May every year, sufficient material proving that no arrears whatever are incumbent on the property, and that the buildings as well as the live-stock and inventory are kept insured against fire.

This capital, in which such revenue or natural or working-achievements as are taken into account by the appraisement of the value of the mortgaged property might be converted, shall be paid direct to the Society's cash-department as an instalment-payment of the amount due to it, whether such conversion is arranged by mutual consent or by public order.

Prg. 24. The members of the 1st series shall pay an annual amount of 5 per cent. of the original loan. Of this amount $\frac{1}{10}$ per cent. shall go to the reserve and administration-fund of the series in each term, and of the remaining $2\frac{4}{10}$, 2 per cent. represents the interest on the capital due every term; the rest goes towards re-payment of the debt, which in this way will be repaid in the course of about 45 years. Together with the last half-yearly payment the balance owing shall be paid.

The members of 2nd, 3rd and 4th series shall pay an annual amount of $4\frac{1}{2}$ per cent. of the original capital loan, of which $3\frac{1}{2}$ per cent. per annum shall be charged as interest on the rest liabilities, whereas $\frac{1}{10}$ per cent. of the capital shall in each term be put aside for the reserve and administration-fund, and the balance shall be written off against the debt. From the 11th June-term 1896 the half-yearly contribution to the reserve and administration-fund in 2nd, 3rd and 4th series

shall be reduced to $\frac{1}{2}$ per cent. of the capital, and the half-yearly payment will thereafter in December term 1896 and subsequent terms be only 25 per cent. of the capital. If the loans of these 3 series should not be fully repaid in the 90th term after they were made, the balance of the amount shall be paid in the said 90th term, together with the last half-year payment.

The members of 5th and 6th series, 1st and 2nd section, shall pay respectively 4½ (until further notice, *vide* preliminary provision Prg. 3) and 4 per cent. annually of their original debt. Out of this the interest due on the capital at the time respectively at 4 (until further notice, *vide* preliminary provision Prg. 3) and 3½ per cent. per annum shall be charged; of every 100 krones forming part of the capital 8 öre shall accrue to the reserve and administration-fund in every term and the balance shall be written off as instalment on the debt, which in this way in the course of about 64 and 69½ years will be repaid. Together with the last half-yearly payment, the balance owing shall be paid, and in case of the loans in 1st Section of these series not being settled in the 128th term after they were made, the balance of the amount owing shall in the said 128th term be paid, together with the last half-yearly payments.

In the new section, which, according to Prg. 4, will be established in the 6th series on June 11th 1896, the members shall be liable to pay 3½ per cent. annually of the capital. Thereof the interest at 3 per cent. per annum on the capital due at the time shall be charged. Of every 100 krones forming part of the capital 8 öre shall accrue to the reserve and administration-fund in each term and the balance shall be written off as instalment on the debt, which in this way will be repaid in the course of about 76½ years.

The said payments shall be effected by halves every 11th June and 11th December term for the half-year then expired.

By the admittance of members into the Society or by transfer from a closed series, 2 per cent. of the loan granted shall be paid to the reserve-fund of the open series. From 11th June term 1896 this entrance-fee may be paid by ½ per cent. on receipt of the loan and by ½ per cent. in each of the subsequent 11th June and 11th December terms, against the same security being given in the mortgage deeds for the balance of the amount as for capital, interests and other payments. At withdrawal from a series within 5 years after the raising of the loan, an amount equal to the sum paid less than 5 years' contributions shall be paid into the reserve-fund of the series concerned.

Everyone shall, moreover, be liable to pay to the Society on receipt of the loan, a contribution towards the allowances and travelling expenses due to the representatives for surveyance of mortgaged property on account of loan according to Prg. 63, which contribution shall be fixed by the Committee of Representatives and Board of Directors jointly.

The loan-seeker, who declares that he will accept a loan granted

by the Society against fulfilment of the conditions attached thereto, but fails to have this loan settled in the term concerned or in the subsequent term, shall be liable to pay into the reserve-fund of the series concerned ½ per cent. of the amount of the loan granted. This shall in no case exceed 100 krones.

In the event of the reserve and administration-fund of a series for one reason or other growing less than 1 per cent. of the debt of the series, all members of the series shall furthermore be liable with 3 months' notice at one of the above-mentioned payment-dates, to pay such extraordinary contributions as, after a careful assessment in proportion to the capital of each member's debt to the series, are requisite for again increasing the fund to the amount aforesaid.

Prg. 25. The loans granted by the Society cannot be withdrawn by the Society as long as the debtor concerned in every way promptly fulfils his obligations. If the contrary be the case they shall be due for payment at once and especially:—

(*a*) *If* the amounts mentioned in Prg. 24 have not been paid to the Society within the months of June and December respectively.

(*b*) *If*, by re-valuation of the mortgaged property it is found, that owing to deterioration, it does not any more afford the statutory security.

(*c*) *If* the owner appropriates the convertion-capitals mentioned in Prg. 23.

(*d*) *If* it is neglected to keep the buildings insured against fire.

(*e*) *If* taxes, public dues or tithes come in arrears or if the achievements and encumbrances, which are mortgaged on the property prior to the claim of the Society come in arrears.

(*f*) *If* manure is removed from the property.

(*g*) *If* the mortgaged live-stock and inventory are reduced or discharged to the extent of one-half of what they were originally.

(*h*) *If* debtor's estate is passed into bankruptcy.

(*i*) *If* debtor dies and the estate is dealt with by the public for the division of the inheritance without inheritance and debt being acknowledged.

In all these cases the debtor concerned must be prepared that the Board of Directors will arrange for the sale of the mortgaged property at once to cover capital as well as interest and payments due and also expenses, according to the bond issued (prg. 22).

Prg. 26. Any member shall be subject to the provisions of these bye-laws and the amendments to which they might be subjected in a statutory manner. The necessary provision relative to this obligation shall be contained in the bond issued to the Society.

Chapter V.

Concerning the Management and Officers of the Society.

Prg. 42. The supreme decisive power in all affairs of the Society rests with the general meeting composed of the members of the Society (prg. 58-60).

In cases concerning change of interest on the treasury-bonds belonging to one or more series, the supreme decisive authority in respect to any one series rests solely with the members belonging thereto.

The affairs of the Society are managed by a Board of Directors responsible before the general meeting and controlled by a Board of Representatives.

Prg. 43. The Board of Directors consists of three members and is elected by the Board of Representatives. The directors, among whom one should always be well versed in law and another one expert in farming, are elected for a period of six years, one retiring every second year. They should reside at Copenhagen, this city being the domicile of the Society, or so close to the city that they may appear there without difficulty.

The Board of Directors cannot take any resolution, unless two of its members are present.

In the event of a director being temporarily prevented from performing his duties the Board of Representatives may appoint another person to act for him during his absence, as a temporary substitute. The same holds good during vacancies in the Board of Directors.

Prg. 44. Whenever an ordinary election of directors takes place the Board of Representatives appoints one of the members of the Board of Directors to act as chairman for a period of two years. The chairman has the general detailed supervision of the entire business management and should therefore, as a rule, be present on the premises of the Society during office hours.

Generally, the Board of Representatives decides on the distribution of current business between the directors, provided always that their collective resposibility remains for the decisions to be taken by the full Board of Directors, according to the statutes.

Prg. 45. All applications for membership in the Society and for loans therefrom are to be considered by and decided upon by the Board of Directors in full, but with the provision that if the decision of the directors is at variance with the declaration made by the representatives concerned, then the latter should be notified thereof.

The Board of Directors issue and sign, in behalf of the Society, the treasury-bonds emitted by the latter.

The Board of Directors cause the loans granted to new members to be handed over to these and see that interests and other dues of the

members to the Society are received at proper times. They effect the necessary supervision of the maintenance of the mortgaged properties and may, as often as they find proper, let any of the properties mortgaged to the Society be inspected by one of its members in conjunction with the representatives of the district concerned, or after special agreement between the Board of Representatives and the directors, by the representatives of the district in conjunction with one of the appraisers. The board decides as to when and how payable loans or arrears are to be collected and causes the interests on the Society's treasury-bonds, as well as the treasury-bonds recalled by casting of lots, to be paid out at the proper terms. It takes care that the cash balance of the reserve and administration funds are made productive either by purchase of the Society's treasury-bonds or in other safe manner.

The Board of Directors issues the instructions referred to in Prg. 10 for the Society's appraisers, which instructions are to be approved by the Board of Representatives. It is entitled to suspend any appraiser, when it finds cause to do so.

Prg. 46. The Society's current business, as far as it is not performed by the directors, is to be distributed between a treasury, a book-keeping office, a managing office and an auditing office, which offices may be subdivided into several departments. The Board of Directors appoints and discharges the officers required to perform the business and prepares a draft of instructions for these, subject to the approval of the Board of Representatives.

The salaries of these officers are fixed by the Board of Representatives after being proposed by the Board of Directors.

All officers and employés of the Society, when discharged, on account of age, debility or for other reasons not chargeable to themselves, after at least 15 years' service in the Society, are entitled to a pension from the Society, but never to more than $\frac{2}{3}$ of the average amount of the salary they have been earning during the last five years from the Society.

The detailed rules for the amount and computation of the pension, as well as the conditions for acquiring and loosing it, are to be fixed by the Board of Representatives, after being proposed by the Board of Directors.

Prg. 47. The Society's fiscal year runs from the 1st of April to the 31st of March, and for every three months special extracts of the previous receipts and expenditures are to be made out.

The yearly account is made up and submitted to the auditors before the subsequent 15th of June, and the abstract of accounts is made up within three weeks after the lapse of every quarter.

The Board of Directors causes the yearly account to be laid before the Board of Representatives, the general meeting and the public, and sees that the same, together with the quarterly extracts, is submitted to the Ministry of the Interior.

Prg. 48. Besides the Board of Directors must, in a general way, look after the Society's business in the best manner and follow the statutes minutely.

Prg. 49. The insular dioceses, including Samsö, should be divided, for the purpose of electing the representatives, in as many districts as the Board of Representatives of the Society may decide; still in the future the members must not be less than 17 instead of 15 as heretofore, and Copenhagen with the nearest surroundings should always have at least five representatives, the country Bornholm and the diocese Fyen at least one each.

In limiting the remaining districts, the main consideration should be to give to each district an outline meeting the requirements of the members as well as of the representatives. Whether a redistribution of the districts of representatives existing at any time would be required, and if so, then how such redistribution would have to be performed, according to the above stipulations, is to be decided by the Board of Representatives.

The members belonging to any one district elect one representative who holds his office for three years and is elected, by simple majority according to Section 59, at the yearly meetings held by the members in that district.

The election is managed by a chief of election nominated, among the members in the district, by the Board of Representatives.

Simultaneously with the elections of representatives an election, by separate voting, is made of a deputy-representative who is to step into office when, for any reason, the representative might retire before his term of service has expired, or when, for a shorter or longer period, he might be prevented from acting. The deputy takes also charge in case of business where the representative is akin to, or by marriage related to the owner concerned, in ascending or descending line, or in first and second side line, or where the representative has a right of seizure or a preemption in the property concerned, or where during the last two years the representative has been active in the building or re-building of any edifice on the premises as architect, inspector, builder or contractor.

The validity of these elections is decided upon by the Board of Representatives.

Prg. 50. The representatives meet always at Copenhagen, at least once a year. The sessions are called in by the chairman of the Board of Representatives.

In order that the Board of Representatives may take a valid decision it is always required that half of the representatives should be present, and that more than half of those present vote for the decision. For the validity of the election to be performed by the Board of Representatives a majority of the votes cast is likewise required. At election for salaried offices no representative is allowed to vote on himself.

The yearly session of the Board of Representatives is held during the month of October.

During this meeting one of the representatives is elected as their chairman for the following year. The chairman of the representatives presides over the negotiations in the meetings.

Extraordinary sessions of representatives are held whenever decided by the chairman, or when either the Board of Directors finds occasion to require it, or when one-third of the representatives demand it.

Prg. 51. The Board of Directors lays before the yearly meeting of the representatives a report of the doings of the Society in the last fiscal year and produces the accounts, with the remarks of the auditors and the answers thereto, as well as copies of the quarterly abstracts given in the last fiscal year and later. The Board of Representatives passes the accounts and gives to the Board of Directors a discharge for the correctness of the accounts.

Then the elections to be made by the Board of Representatives are performed, and any questions, brought up either by the Board of Directors or by any of the representatives or by the members of the Society, are discussed and decided upon.

In the extraordinary meetings of representatives only such topics as have caused the meeting to be called in may be considered. Exceptions from this rule may only be made with the consent of the Board of Directors and the Board of Representatives.

Prg. 52. The chairman of the Board of Representatives publishes, with at least 4 weeks' notice, an advertisement concerning the time of meeting of the representatives, in "Berlingske Tidende," as well as in "Lolland-Falsters" and "Fyns Stiftstidende," and in one more of the local papers most widely circulated in each district of representatives, but besides he should notify each representative in particular, not later than 14 days before a meeting is to be held, shortly indicating the items of business to be dealt with.

The items of business which any member wishes to lay before the Board of Representatives in the yearly meeting and the subsequent ordinary general meeting must be announced to the Board of Directors not later than 3 weeks before the meeting of representatives is to be held.

Prg. 53. It is the duty of the Board of Representatives to look after the interests of the Society in the best possible manner, and especially to see that the statutes of the Society are followed minutely. The Board of Representatives is entitled to suspend the members of the Board of Directors, as well as the Auditors, but the validity of such action is dependent on two-thirds of the members present being unanimous in the decision.

Prg. 54. Within a month after the yearly session of representatives is finished, the representatives, each in their own district, should publish, with at least 8 days' notice, in one or more of the

most widely circulated papers in the district, a notice summoning the members of the Society in that district, to a meeting at a convenient place. Members from other districts are not admitted to these meetings.

At the meeting the representative should produce the report of the Board of Directors concerning the Society's doings during the last fiscal year, and the published accounts, as well as an extract of the resolutions taken during the yearly session of representatives, and he should also effect the election of appraisers referred to in Prg. 56.

It is further the duty of any representative to communicate to the Board of Directors the statements and information they demand, and to perform the special duties allotted to him as district representative by virtue of the bye-laws.

Prg. 55. The Board of Representatives appoint two auditors to examine the yearly account and inspect the funds in hand according thereto, both bonds and cash, and especially to certify that the treasury-bonds redeemed according to the accounts have been shown to them and that they have borne proper cancellation marks. The remarks of the auditors should be submitted to the Board of Directors within the 1st of August every year, and the answer of the Board of Directors should be given within the following 21st of August.

The auditors must then declare before the 15th of September whether they find the answer of the Board of Directors satisfactory or not, and make recommendation to the Board of Representatives whether they may approve the accounts or whether anybody is to be called to account.

Every year one of the auditors retires, who has served for the longest term. For every auditor a deputy is also elected.

Prg. 56. For every district of representatives or for such larger or smaller districts as may be determined by decision of the Board of Representatives, election is made, at the yearly meetings mentioned in Prg. 54, of appraisers whose number is 3 in each district, and out of these every year one retires, who has served for 3 years.

The validity of these elections is to be decided by the Board of Directors.

An appraiser must not appraise any property to the owner of which he is related or allied by marriage in ascending or descending lines or in first or second line. Nor must he value any property in which he himself has any right of seizure or preemption. Finally he must not value any building at the construction or re-building of which he has been active during the last two years as architect, inspector, builder or contractor. In such cases, as well as when appraiser is prevented from serving or is suspended according to Prg. 45, the chairman of the Board of Representatives is authorized, after notification from the Board of Directors, followed by a recommendation from the representative concerned, to appoint another appraiser, either for that particular case or until a new election can take place.

Prg. 57. The appraisers after being appointed, submit to the Board of Directors a written affidavit wherein they declare their intention as honest men faithfully and conscientiously to perform the duty entrusted to them, accurately to follow the regulations given to them in regard to the valuation of the properties, and always to perform the valuations so as to be willing to confirm the same before the courts with their corporal oath, when required.

The appraisers are obliged to perform the valuation, within 14 days after being requested to do so, unless they can prove good hindrance whereof the requirer should be informed, and it is also their duty to inspect the properties pawned to the Society, whenever the Board of Directors may request them to do so.

Prg. 58. Every year a general meeting is to be held, immediately after the yearly meeting of representatives; besides the Board of Directors, as well as one-third of the representatives, may demand an extraordinary general meeting to be held. Such may also be required by 100 members.

When a general meeting is to be held, the Board of Directors publishes an advertisement to that effect, with at least 14 days' notice, in "Berlingske Tidende," as well as in "Lolland-Falsters" and "Fyns Stiftstidende," and in one or more of the most widely circulated local papers, and the publication should contain a short indication of the items of business to be transacted. In case propositions are made concerning amendment of the statutes, the published notice should also contain a short indication of the nature of these amendments, and statement to the effect that a printed copy thereof may be called for by the members from the representatives, or will be sent free of postage upon application to the Board of Directors.

Prg. 59. Before the yearly general meeting is laid the report of the Society's business during the past year communciated by the Board of Directors to the Board of Representatives, and also the accounts and the quarterly abstracts as given, with the auditor's remarks and the answers thereto. Besides decision is made relating to the complaints that may be made, on account of the Board of Directors or the entire Board of Representatives having refused anybody applying for membership in the Society, and of other business that may be on hand. In the event of questions arising as to amendments in these bye-laws as well as when either the Board of Representatives has suspended any one of the directors or of the auditors, and the person concerned demands it, or when the Board of Directors believes it is their duty to refuse to execute a decision taken by the Board of Representatives, and when the Board of Representatives, after such refusal having been set forth, are unwilling to alter their decision, the case is to be laid before a general assembly.

Prg. 60. All members of the Society are entitled to appear at the general meeting and cast their votes. The number of votes depends on the amount of the capital, or—if the member has entered with several properties—on the aggregate amount of the capitals so, that—

Kr. 29,900 or less	entitle	to 1	vote
„ 30,000 to 49,900	„	„ 2	votes
„ 50,000 „ 69,900	„	„ 3	„
„ 70,000 „ 89,900	„	„ 4	„
„ 90,000 „ more	„	„ 5	„

which is the highest number of votes to which any one member may be entitled, either as such or as attorney for others.

Any member, in order to be able to cast votes on the general meeting, must be present there in person, or send a duly authorized attorney, who must be a member of the Society.

In order that the general meeting may take valid decisions, the number of members present must be such as to represent 100 votes. If this number of votes is not represented, a new general meeting is fixed, with at least 14 days' notice, the advertisement containing a reference to the present section to be effected in the manner stipulated in Section 58, and the new general meeting thus called in, is competent to take decision, disregarding the number of members that are present. Any resolution of a general meeting, in order to be valid, must be approved by more than half the number of votes cast.

Further rules of practice to be followed at the general assembly and the meeting of members and the elections of representatives, deputy-representatives and appraisers, according to Sections 49 and 56, are to be fixed by a regulation approved by the Boards of Directors and Representatives.

Prg. 61. Men outside the Society are eligible as directors, but representatives, deputy-representatives, auditors, deputy-auditors and appraisers (with the exceptions warranted by Sections 9, 11 and 56) should be members of the Society.

The members are bound to accept office when elected, provided that the Board of Representatives does not find sufficient reason to relieve them upon their request.

At all re-elections, those retiring may be elected again, but they may refuse to accept the new election for the same length of time as they have been serving.

When any officer retires, outside of the regular turns, then the person elected to replace him serves only during the remaining period, until the time when the retiring person would regularly have retired.

APPENDIX VI. (*Continued*).

The System of Credit Associations in Denmark.

At the time when the idea of forming Credit Associations was seriously taken up in Denmark, conditions were favourable for their development.

After many politically as well as financially disastrous years in the beginning of the 19th century, a period of prosperity began in 1828, especially in the principal industry of the country, namely agriculture.

The social reforms for country-people dating from the close of the 18th century had commenced to operate according to their aim, *i.e.*, to form an independent body of agriculturists, and yet there were during the financial crisis of 1818-20 times when many of the property-owning farmers desired a return to the old conditions of dependency.

But with better times came the feeling of self-esteem, and when Europe's political wave of liberty reached Denmark in the forties, the time was ripe for the financial progress contingent upon unity and co-operation.

To render possible a larger yield from the soil and to provide generally improved habitations, the owners had to be given access to firm loans.

Several attempts had been made to establish Credit Institutions, but with one exception, operating solely in the Capital, they all miscarried.

The right course was only found when the loan seekers co-operated and acted in concert. The fact is, that a Credit Association is an Association of borrowers, which gives the creditor security on the properties of all the borrowers for the total loans received.

The individual *borrowers (members) are the Associations' debtors, while the Association is the debtor to the actual lenders. This idea of Credit Associations was not original, but was thoroughly and consistently carried out in Denmark with a success that is illustrated best by a glance at the enormous development which this Denmark's first large co-operative scheme obtained—a development so great that it carried a considerable part of the monetary turnover of the country into a new channel.

* Not only farmers but many a shop-owner or citizen in towns make use of these Credit Societies, in building his villa or house in the country.

To enable a Credit Association to operate, no payment towards any fundamental capital or corresponding funds is required, and although joining members must contribute towards a reserve fund, which besides other purposes is intended to cover any losses, still the fundamental security for the creditors of the Association is and remains the members' liability in common, *i.e.*, their joint and several responsibility.

The title of "Kredit-forening" (Credit Association) for an institution, which grants loans against mortgages on landed property, is typically Danish; in other countries such loans are generally called Mortgages or Hypothec loans, and the institutions which grant the loans are called Mortgage or Hypothec Banks or Associations.

In Denmark "Kredit-forening" (Credit Association) is descriptive of institutions, which grant loans against a *first* mortgage charge, while "Hypothek-forening" (Mortgage Association) signifies institutions which grant loans against *second* mortgages.

A most important condition for loaning operations against security on land with permanent buildings, etc., had from olden times existed in Denmark, inasmuch as the registration of the land with the description of the individual properties as well as the system of an official Mortgage Registry (which latter was vested in the Court) was arranged on good principles, so that each property had its own special registered number and leaf in the official Mortgage Registry, in which, according to the existing regulations, every encumbrance must be entered, and from which it can consequently easily be ascertained what security is available for a mortgage.

The establishing of Credit Associations did not in itself require the co-operation of legislation, but as it might be assumed that the prosperity of such Associations to a certain extent was conditional on obtaining certain concessions from the existing legislative power, a Bill to this effect was, after some negotiations, agreed upon, and was brought before the legislative power in March 1850, and was so favourably received that without any material alterations and hardly 3 months afterwards, it resulted in the Act of 20th June 1850 regarding "The Establishing of Credit Associations and Credit Offices for Property Owners." Further, the privileges demanded in the Bill and granted in the Act were not great, and they consist principally in the provision that the Association's obligations (bonds) to their creditors may be issued to bearer, that the same are exempt from stamp-duty, when issued or when transferred, and that the Associations may demand from their members a higher rate of interest than four per cent. per annum, which is otherwise not lawful in respect of interest on mortgages, unless special license has been obtained in each intance.

Of the conditions in the Act on which these concessions were obtained the most important are:—

"That before establishing Associations borrowers must be enlisted for a certain amount.

"That no member shall be granted a larger loan than three fifths of the value of his property fixed by valuation according to certain rules.

"That there must not at any time be in circulation a larger amount of Bonds issued by the Association than the total amount of the members' mortgages issued to the Association at any one time.

"That the members shall be jointly and severally responsible for the Bonds issued by the Association to the extent of the full appraised value of their property, provided they have obtained three-fifths of the same as a loan, and in the same ratio to the borrowed amount, if the same constitutes a lesser part of the appraised value.

"That the members shall, besides interest on the loans, pay a suitable annual percentage of same towards the redemption of the bonds.

"That the Board shall annually publish the Association's Balance Sheet and each quarter send an abstract of accounts to the Ministry of the Interior—and

"That the statutes can only be altered with the sanction of the Ministry."

The Act was in its essential parts in accordance with the Bill, and the Credit Associations could therefore develop quite freely even as regards their sphere of activity.

In this respect it was decided to limit each Association's scope, some to certain parts of the Kingdom, others to Country Property, two to Smaller Landed Estates (Husmands-Kreditforeningerne, *i.e.*, Small-holders' Credit Associations) some to Town Properties and one to Industrial Properties.

In virtue of the Act of 1850, five Credit Associations were established. One of these was, owing to unfortunate circumstances at its start and other special causes, compelled to discontinue its lending operations after the monetary crisis in 1857, but although this Association was placed under Public Administration and had to bear the expenses thereby entailed in addition to the loss of about 950,000 krones sustained on property taken over, the owners of the Bonds were nevertheless fully satisfied, both as regards principal and interest, and there is therefore every reason to point to this the only "bad egg" of the Danish Credit Associations as a proof of the exceptional security afforded to capital through property-owners amalgamating and forming Credit Associations.

However, the Credit Association last named was one of the causes of the passing of the Act of 19th February 1861,* which for one

* In 1861 the formation of further Credit Societies under the Law of 1850 was stopped, as the institution of Series could not be allowed under the Law of 1850. The Series meant a number of Credit Unions under a common management.

thing provides that in future the concessions referred to in the Act of 20th June 1850, can be granted to newly-established Credit Associations only by special Act.

That this restriction on the part of the Legislative Power by-the bye was not founded on the condition of the time, is proved by developments, as already in 1866 a new Association was established in virtue of a special Act, and later on six more were established in virtue of special Acts of essentially the same tenor as the Act of 1850, so that there are in all eleven Credit Associations for property-owners at present (1913) operating in Denmark.

Their names are:

*(1) *The Credit Asssociation of Landed Estate Owners in Jutland (1851).*

(2) *The Credit Association of Property Owners on the Danish Islands (1851).*

(3) *The Credit Association for Property Owners on the Island of Funen (1860).*

(4) *The West and South Jutland Credit Association (1860).*

(5) *The Credit Office for Landed Estates on the Islands (1866).*

(6) *The New Credit Association for Jutland Towns (1868).*

(7) *The Credit Association of Proprietors of Small Landed Estates in Jutland (1880).*

(8) *The Credit Association of Proprietors of Small Landed Estates on the Islands (1880).*

(9) *The Credit Association of Landlords in Copenhagen and Environs (1882).*

(10) *The Credit Association of Property Owners in Jutland (1893).*

(11) *The Credit Association for Industrial Properties (1897).*

Their statutes and general organisation are very similar, and these Associations can be broadly referred to collectively, with the exception, however, of Nos. 7 and 8, which have a unique position in so far as the Bonds of these Credit Associations enjoy a Government guarantee for interest until repayment of the principal. This is a result of the socialist movement to secure the small agriculturists (Husmænd, *i.e.*, Small Holders) the cheapest possible terms for loans.

The General Meeting of the members of an Association, and. in certain Associations, of the members jointly with the Bond-holders, has the supreme power of resolution, with the provision, however, that any alteration of statutes must be confirmed by the Ministry of the Interior which supervises the Association's accounts, and as regards the majority of the Associations, elects one of the auditors.

* The Danish names are given on page 320.

The General Meeting elects a committee, consisting of members, which, while being under responsibility to it, acts as intermediary between the General Meeting and the Board of Directors, in whose hands the commercial management is laid.

Before a property-owner is elected as a member, his property is described and appraised either by two appraisers of the Association, permanently engaged for the district, or by men appointed by the Government.

The valuation given by them forms the basis of the Board of Directors' judgment, as to what extent a loan may be granted. It would perhaps be desirable to have more centralisation in regard to the valuation of the properties, but this is not feasible in the country districts.

As mentioned previously the loan may not exceed three-fifths of the appraised value—which limit is rarely reached in actual practice—and in addition to the joint and several responsibility for the loan referred to above, a mortgage is issued with a first charge on the property. In exceptional cases, namely, where a first mortgage securing a loan for a small percentage only of the total value already exists, second mortgage may be taken as security.

The amount of the loan is paid out in Bonds of the same nominal value as the loan, bearing the same interest as the loan, which Bonds it consequently rests with the borrower himself to realise at best through a Bank or Brokers; all Credit Association Bonds are, however, subject to daily quotation on the Copenhagen Stock Exchange, and are in fact the securities in which by far the greatest part of the Kingdom's private and public means are invested.

A member's contributions to the Association are partly a payment to the Reserve Fund (generally 2% of the loan, which is made on the granting of the loan or in the course of two years), partly a semi-annual contribution, which is generally a fixed one and of which a part is interest on the outstanding debt for the time being, while 0·08 to 0·1% of the original amount is a contribution to the Reserve Fund, and the remainder of the contribution is a reduction of principal, which is employed towards the redemption of the Bonds. The estimated time of redemption is generally 60 to 65 years, but originally it was estimated to be somewhat shorter.

The extraordinary reduction of principal arising from the surplus of the Reserve Fund, as explained below, has, however, the effect of making the actual time of redemption become considerably shorter.

In some Associations an attempt was made, in virtue of a permit from the Legislative Power, to establish sections, granting wholly or partly irredeemable loans with corresponding irredeemable Bonds, but as the quotations of these in the long run proved less favourable, these sections have not had any influx. The members have the right—generally without notice—to pay off their loans in Bonds or in cash, but the charge on the property for the several and joint respon-

sibility cannot be cancelled before the respective year's accounts have been approved, unless satisfactory security according to the judgment of the Ministry has in advance been given for same. The Association's Reserve Funds formed by the contributions of the members bear the Association's administration expenses and losses, if any, and is owned by the members who participate in same, each in proportion to the original amount of his loan.

Owing to the insignificance of the losses, the Reserve Funds increased rapidly and to a larger extent than necessary to fulfil their object, and it was therefore natural that the members desired to benefit by the resulting surplus, to which they themselves had contributed.

In one Association, where in the first series special certificates were issued for payments made—in this instance 5%—on receipt of the loans, a distribution of the surplus was attained in these Series by paying a sort of dividend to the holders of the certificates.

In other Associations, the semi-annual contributions to the Reserve Funds were reduced or quite eliminated, but in the majority of the Associations the distribution is carried through in a manner, whereby such part of the Reserve Fund which exceeds 3 to 6% (in the Credit Association for Industrial Properties 10 per cent.) of the Bond-debt of the respective Series, is employed for the purchase and cancellation or redemption of the Association's Bonds, and is thereupon written off on the members' debts, distributed among the members in proportion to their participation in the fund.

In view of this *modus operandi*, large amounts have been written off in the course of past years. For instance, it might be mentioned, that the Credit Association for Property Owners on the Danish Islands, 13 years after it was founded, could already commence this so-called extraordinary writing off, and that for 1912 the Association wrote off in five different Series: 0·41%, 0·19%, 0·18%, 0·21%, 0·30% respectively on the members original debts, while the same members' annual contributions to the Reserve Funds amounted only to: 0·2%, 0·2%, 0·2%, 0·16% and 0·16% respectively of their original debts; these members thus receive annually credit for an amount which is up to twice the extent of their contributions to the Reserve Funds.

In this Association there are extraordinarily written off such parts of the Reserve Funds, which in respect of the first three of the said Series exceed 3% and in the last two 5% of the current Bond-debt.

In the Credit Association of Landlords in Copenhagen and Environs, the limit is 6% of the debt, but nevertheless there was written off for 1912 in the 4 divisions of this Associations' first series 0·47%, 0·46%, 0·47% and 0·4% respectively, on the original amounts of the loans, while the annual contributions to the Reserve Funds in this instance were 0·2%. This result, *viz.*, that a semi-annual contribution of 0·08%, to 0·1% besides the initial payment, is not only suffi-

cient to bear all of an Association's administration expenses and losses, but also is capable of yielding a nice surplus, shows how careful and secure the management of the Danish Credit Associations has been, while their unparalleled prosperity proves that on the other hand the loans granted have been quite sufficient to satisfy demands. Furthermore those members, who by extraordinarily redeeming their loans had left the Associations, came forward with claims for their share of the Reserve Funds, which was quite a new question requiring deep consideration, and was only settled after the 1890-ties by the different Associations in different ways.

The heavy increase in the Reserve Funds disclosed an injustice in the rule that a member participates in the fund not in proportion to his initial payment, but in proportion to the original amount of his loan, as a newly-admitted member, in spite of his contribution only amounting to his initial payment, *i. e.*, 2% of the loan, at once became a co-owner of a fund giving him a participation for instance of 4% of his loan, while old members whose loans were well on the way to being-paid off, were saddled with the joint-responsibility for the new member.

In order to limit this disproportion a permit was obtained to divide Associations into Sections or Series, each having its own Reserve Fund, with or without joint and several responsibility towards the Bondholders.

This developed in time into the designation of "Series" being generally used, where the joint and several responsibility only applies to Bonds pertaining to the respective Series, while a Series is often divided according to the different rates of interest into sections with joint responsibility.

The joint responsibility between a closed Series and the first subsequent new one opened, continues, however, until the latter has reached a certain amount, say 2 or 3 million krones.

A Series which has its own Reserve Fund and has no joint responsibility in common with any other Series, can consequently to a certain extent be considered a Credit Association in itself. The joint responsibility would at this stage, however, give rise to some difficulty, if a member of a closed Series desired an additional loan in a new Series, as the consequence of the system of Series must be, that the joint responsibility for the old loan must be taken as a full charge, that is, either to the extent of the total appraised value or according to the proportion of same to the original amount of the loan, regardless of how much has been paid off on the loan, so that generally there was room for an additional loan only, when a new valuation exceeded the old one.

In spite of many efforts made to alter this state of affairs many years elapsed, during which members in such cases had no other alternative than to redeem their old loans, even though no authority existed at the time to pay out their participation in the Reserve

Funds, and thereupon join a new Series, requiring a 2% initial payment.

It was a step in the right direction, when in 1887 a permit was obtained subject to the Reserve Fund in a closed Series having reached a certain figure, to pay out participtions to members, who transferred the remainder of their debts to an open Series, and at the same time to cancel the joint responsibility to a closed Series. In respect of some Associations this permit has since been extended so as also to apply to transfers from an open Series, excepting that the stipulations as regards the extent of the Reserve Fund and the paying out of participations are a little different.

Such transfers are effected by endorsement on the members' mortgage-deed, and the cancellation and issue respectively of the old and the new Series Bonds to the extent of the remainder of the debt, and it is thus in reality a redemption of the old loan and a simultaneous floating of a new one.

Further, the Ministry was ultimately authorized in 1896 to confirm alterations of statutes, whereby the joint and several responsibility, on additional loans being given in a new Series, was to be fixed at only 10% of such part of the remaining debt, by which same exceeded one-third of the valuation serving as the basis for the new loan.

Through these modifications in the joint and several responsibility, members have been enabled to avail themselves of the advantages of the system of Series, as they are not excluded from additional loans, and can, without any significant loss or expense, convert their loan from one into another on a different interest basis, when a favourable opportunity offers. To illustrate the development of the above-mentioned eleven still operating Credit Associations, a general view (in round figures) is here given:—

Years.	Loans. Krones.	Reserve Funds. Krones.	Period.	Loss. Krones.
1852	2,489,000	27,700	1851-1852	...
1860	34,254,000	750,200	1853-1860	...
1870	68,375,000	2,417,800	1861-1870	200,400
1880	195,372,000	7,980,900	1871-1880	131,600
1890	451,613,000	14,860,300	1881-1890	840,800
1900	744,111,000	26,815,100	1891-1900	957,600
1913	1,606,342,000	66,753,100	1901-1913	1,765,300

Altogether the Associations have since their establishment granted loans for a total amount of 2,338,513,000 krones, and of this amount the above-mentioned loss only represents 0·16%.

The condition of the respective Associations at the close of 1913 was as follows:—

	Loans. Krones.	Reserve Fund. Krones.
(1) *The Credit Association of Landed Estate Owners in Jutland*	382,398,700	16,177,900
(2) *The Credit Association of Property Owners on the Danish Islands*	459,900,800	14,922,200
(3) *The Credit Association of Property Owners on the Island of Fuenen*	41,779,400	1,170,300
(4) *The West and South Jutland Credit Association* ($\frac{31}{12}$ *1912*) ...	136,252,000	7,602,100
(5) *The Credit Office for Landed Estates on the Islands*	130,566,100	3,443,600
(6) *The new Credit Association for Jutland Towns*	109,877,200	6,191,100
(7) *The Credit Association of Proprietors of small Landed Estates in Jutland*	122,998,500	6,265,300
(8) *The Credit Association of Proprietors of small Landed Estates on the Islands*	38,299,600	1,863,700
(9) *The Credit Association of Landlords in Copenhagen and Environs*	146,173,800	6,859,900
(10) *The Credit Association of Property Owners in Jutland* ...	29,710,200	1,434,900
(11) *The Credit Association for Industrial Properties*	8,386,000	822,100

The proportion between the total amounts of loans and the appraised values of the respective property is in the Associations' open Series generally 45% to 50%. The majority of the loans granted are under half of the appraised value, and on the whole the authorized limit of 60% is rarely reached.

The two so-called Husmænds (Small Holders Nos. 7 and 8) Credit Associations established in 1880, occupy an exceptional position, as they only grant loans up to half of the appraised value and only on properties to the value of 10,000 krones and less. The proportion between the total amounts of the loans and appraised values is, however, not essentially otherwise than in other Associations. All Associations' Bonds are issued to bearer in virtue of the most impor-

tant of the concessions granted by the Act to the Associations. They can be registered in the name of the holder in the books of the respective Associations and can be re-transferred without stamp-duty.

The holder cannot call for repayment by notice, but the Association has the right of calling in for redemption on giving 3 months' notice. Each Bond is accompanied by a sheet of interest coupons, also reading to bearer.

The portion of the members' semi-annual contributions set aside for reduction of the loan is employed in the redemption of the Bonds, as it is decided by drawings every half-year, which numbers of the Bonds are to be redeemed for their nominal amounts.

The Bonds of the numbers thus drawn are called in by advertisement in the daily papers.

For the convenience of Bond-owners they have been given the facility of depositing their Bonds for a total nominal amount of not less than 20,000 krones with the Associations, who issue for same a so-called "Indskrivningsbevis" (Certificate of Registration) and undertake without cost the risk of safe-keeping the Bonds and the work of cutting coupons as well as checking drawings.

The rate of interest for Bonds issued in the years up to 1887 was 4 to 4½%.

While the abundance of money commencing at the close of the 1870-ties redounded to the benefit of new members, partly through the rise in quotations and partly through the founding of new Series with low rates of interest, the old members, however, did not derive any advantage. When the rate for 4½% Bonds in 1887, however, had gone a little above par, and the Government in virtue of Act 1886 converted its 4% debt to 3½%, the majority of the Credit Associations took the opportunity in the immediately subsequent years to convert a large part of their debt from 4½% to 4% and from 4% to 3½%.

In most cases the assistance of the Banks was availed of, but the expense entailed thereby (the commission paid to the Banks for guaranteeing the transaction) was quickly regained by the saving in interest.

It was rather a surprise to the owners of the Bonds that the Associations' right of redemption was to be used to reduce the rate of interest, but this was justified by the condition of the money market at the time, besides holders could, if preferred, obtain their money, and the conversion was carried through without difficulty. In 1895 the quotation for 4% Bonds was again at par, and then a new and still larger conversion to 3½% was carried into effect, comprising all the Associations' 4% debt, about 300 million krones.

The expense entailed in obtaining an immediate reduction of interest was, however, this time too large for the Reserve Funds to advance, and consequently the reduction only took effect some years later, the Bonds being stamped with a notice to this effect. After

conversion the money market very quickly became stringent, so that already before the reduction of interest took effect in 1900 it was necessary to commence issuing again 4% Bonds for new loans, and from 1907 the 4½% Series were commenced, which are the ones, that still have the largest influx of members.

While the quotations for the different Credit Associations' Bonds of the same rate of interest are almost alike in repect of the open Series, the quotation for the closed Series will rise, the nearer same approach the time of their ordinary redemption. The reason for this is partly, that the Reserve Funds of same gradually reach their maximum, and partly and principally that the prospect of the Bonds being drawn at par increases in the same ratio, as the instalment for reduction of principal increases through the members' unchangeable semi-annual contributions.

As the Government gives its guarantee for the interest on the two Husmænds (Small Holders) Credit Association Bonds, same are looked upon by investors as a better security, so that their quotation as a rule is 1 to 2% higher than the other Associations' corresponding Bonds. It has always been an important object of the Associations to promote the extension of the market for their Bonds, and very good results have also been obtained, as a number of Series of the larger Associations' Bonds have for years been quoted on the Berlin and Hamburg Stock Exchanges, and consequently these Bonds are issued both in Danish currency and German Marks and are payable in Germany.

A portion of the two Government guaranteed Credit Associations' (No. 7 and 8) Bonds are also issued in Sterling and are payable in London.

For completion it might be mentioned that an attempt was made a number of years ago to establish a Central Credit Association, the Bonds of which were to afford a more uniform stock for purchases and be based on all the Credit Associations together, but the idea met with opposition, especially on the part of the larger Credit Associations, who contended that each Association operates best independently, and it was therefore not carried out. Finally it may be pointed out, that the Government by Act of 1906 pertaining to the establishing of Kongeriget Danmark's Hypothekbank (The Kingdom of Denmark's Hypothec-Bank) has placed its stamp on the Danish Credit Associations. The aim of the Bank is through issuing loans abroad to secure to the Danish money market the advantages that may be obtainable by such a more direct connection with the foreign money markets.

The loans are obtained by means of the Bonds issued by the Bank, which are secured partly by a fund deposited by the Government and partly by the Bonds of the Danish Credit Associations' open Series acquired for the loans, and of which purchase takes place according to fixed rules.

The Hypothec-Bank has issued three series of 3½% and 4% Bonds for about 70 million francs, which have been taken over by local and foreign banking houses.

During the whole course of the Danish Credit Associations' progress in repute and importance, they internally extended to their members constantly improved conditions, and externally they gained unprecedented confidence, so that the security they afford the capitalist, even in the minds of investors abroad, approximates to that of the Government. The Danish Credit Associations may, therefore, be said to have fulfilled their object in an extremely satisfactory manner, and have undoubtedly contributed no insignificant part in the economical prosperity of the country.

Danish titles of the different Credit Associations :—

(*1*) *Kredit foreningen af jydske Landejendomsbesiddere.*

(*2*) *Kreditforeningen af Grundejere i de danske Óstifter.*

(*3*) *Kreditforeningen af Grundejere i Fyens Stift.*

(*4*) *Vest-og Sónderjydske Kreditforening.*

(*5*) *Creditkassen for Landejendomme i Ostifterne.*

(*6*) *Ny jydske Kjóbstad-Kreditforening.*

(*7*) *Kreditforeningen af Ejere af mindre Ejendomme paa Lande i Jylland.*

(*8*) *Kreditforeningen af Ejere af mindre Ejendomme pas Landet i Ostifterne.*

(*9*) *Kreditforeningen af Grundejere i Kjóbenhavn og Omegn.*

(*10*) *Kreditforeningen af Grundejere paa Landet i Jylland.*

(*11*) *Kreditforeningen for industrielle Ejendomme.*

(*12*) *Kreditforeningen af Kommuner* (*The Credit Society for Municipalities*). *Established in 1899.*

APPENDIX VI—*Continued.*

Sample Form of Credit Bond.

6th Series.

4 pct. **4 pct.**

Litra **E.**

Kreditforeningen af Grundejere i Kjobenhavn og Omegn.

(Credit Association of Landlords in Copenhagen and Environs.)

The Board of Directors of the Credit Association of Landlords in Copenhagen and Environs, which Association, according to the bye-laws and later supplemental provisions of the Association, confirmed by the Home Department in virtue of the law of 17th March 1882, **is submitted to State supervision**, have in conformity with these bye-laws and supplemental provisions, issued this bond of the 6th series **to the bearer** for the amount of two thousands crowns. **2,000 Crowns**

equal to **2,250 Marks D. R. W.**, bearing interest at the rate of **4 per cent. per annum.**

One-half of the annual interest or 2 per cent. will be paid each 1st of January and 1st of July on delivering the coupon then due at the offices of the Association in Copenhagen, as well as at the Deutsche Bank in Berlin and its branch-banks in Germany.

Redemption of the Bond cannot be claimed by the creditors. The Bond will be paid by the Credit Association at its nominal amount, when on account of its having been drawn, in conformity with the bye-laws or on account of a notice given by the Association at least 3 months previously, it falls due on the 1st of January or the 1st July in any year. After the day of payment the bonds fallen due do not bear any interest; payable capital and interest are lost by prescription after the lapse of respectively 20 and 10 years from the day of payment.

The members of the Association who form a Series are jointly and severally liable for the Bonds of the said Series, issued by the Association, and for all the obligations otherwise undertaken by the Series to the full appraised value of their properties, mortgaged to the Association, provided they have obtained a loan of three-fifths of the value, and in the same proportion, to the amount lent, if the loan amounts to a smaller part of the appraised value.

The amount of the loan must never exceed three-fifths of the appraised value of the property.

When a Series has been closed, the unlimited responsibility between this and the following Series continues until the expiration of the financial year, in which the new Series have obtained an entire principal of three millions of crowns.

The loans raised by the members of the Association, who form the 6th Series, shall be reimbursed in 60 years as a maximum.

According to a decision of the Board of Directors and the Committee of Representatives, this 6th Series is to be closed at the expiration of the year in which the total of the loans amounts to 60 millions of crowns and at all events at latest on the 31st December 1927.

Trust money and capital of public institutions are permitted to be invested in Bonds issued by the Association.

For the rest we refer to the bye-laws of the Association in force at any particular time, in which bye-laws no change can take place without the sanction of the Home Department.

A counterfoil and interest coupons* for all the terms until the 1st of July 1936 are attached to this bond.

The Board of Directors of the Credit Association of Landlords in Copenhagen and Environs.

Copenhagen the..... 191

*NOTE.—These coupons show the amount of each half-yearly instalment due, the total amount repaid up to date and the balance due at the end of each period, and thus avoid the necessity of keeping individual accounts for each member.

The coupons are printed on seperate sheets of foolscap-sized strong hand-made paper. Each half-sheet is divided into three vertical columns, in which each coupon occupies a space of about $2\frac{1}{2} \times 1\frac{3}{4}$ inches within ruled lines and can be cut off as required for payment. The coupons begin at the bottom right-hand side and go upwards in each vertical column, the one for the first payment occupying the lowest place in the last column, *i.e.*, at the right-hand bottom corner of the last half-sheet; and that for the last payment, the topmost place in the first column, *i.e.*, at the left-hand top-corner of the first half-sheet.

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